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Rail-Road News.

Locomotion the Test of Civilization.

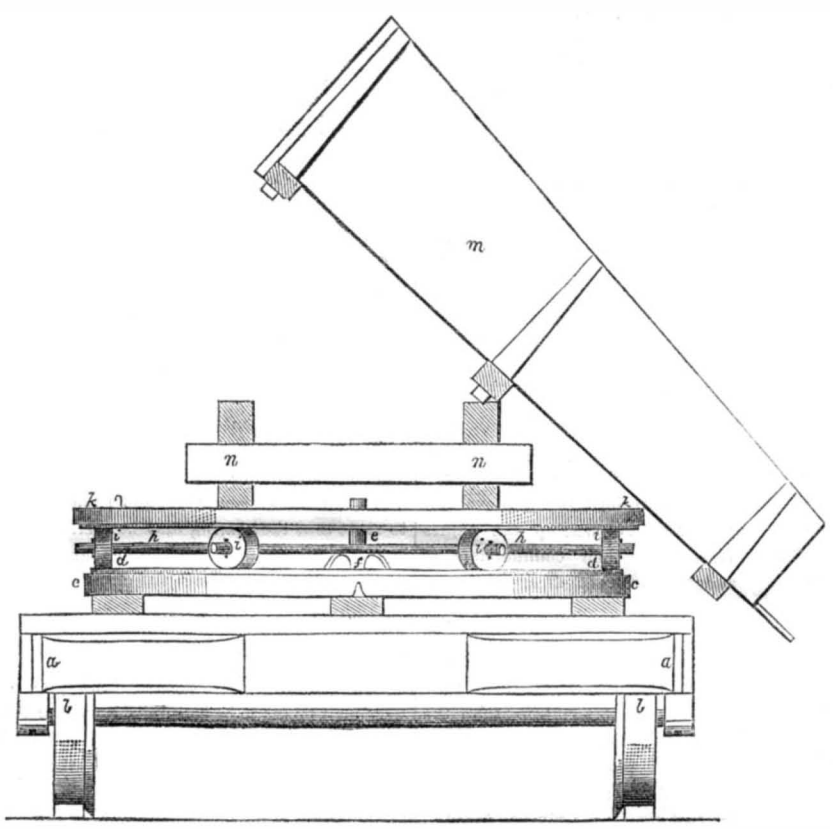
Our good friends and allies, the French, are admitted to be more philosophical than practical, in their views of society, and in the course of the animated discussions which are constantly occurring among their journals, upon theoretical questions, curious reflections and ideas are frequently elicited. The *Courrier du Havre*, in a recent article upon the reduction of railroad fares, throws out the idea that the condition of locomotion in any country is a simple and infallible means by which to judge of its advancement in civilization and in doing so, makes some candid admissions, which would scarcely have been expected from a Gallic source. "He is the most useful citizen," says, "who gives the greatest impulse to the production of wealth, and multiplies exchanges with the greatest zeal. The lowest round of the social ladder is occupied by the negro and Indian; living on little or nothing, producing little, reposing listlessly at the foot of the palm or cocoa tree which waved over them at birth; while, at the summit of that ladder, appear the opulent Englishman, the indefatigable American, great consumers, great producers, and expenders; always in motion, always on the road, never arriving but to start, never buying but to sell, never gaining money but to invest it again. Between these two extremities, but more closely approaching the latter, are the nations of Latin origin, the Italians, the Spanish, the French, nations laborious but economical, contemplative and sedentary by taste, travellers by occasion or by necessity, considering labor merely as a means of arriving at repose, aspiring to become independent rather than millionaires."

Pacific Railroad.

It is well known that Mr. Whitney, of New York, who projected what is known by the name of Whitney's Railroad—a railroad to the Pacific—after having met with much opposition in the Senate, at Washington, went to London the last spring, and brought the subject before the English public. He proposed the erection of his railroad through the British possessions of North America to the Pacific. His plan has met with the strongest objections on account of its impracticable nature and the absence of any benefit it might confer on the capitalists of that country. The plan has found no favor with the engineers there.

The New Bedford Mercury publishes a letter telling how a lady of that place, by drawing a rocking chair along the carpet, received a tremendous electric shock, and at the same time her husband saw a blue ball of electricity float through the room. Wonderful, truly.

PALMER'S PATENT DUMPING CAR.---Fig. 1.

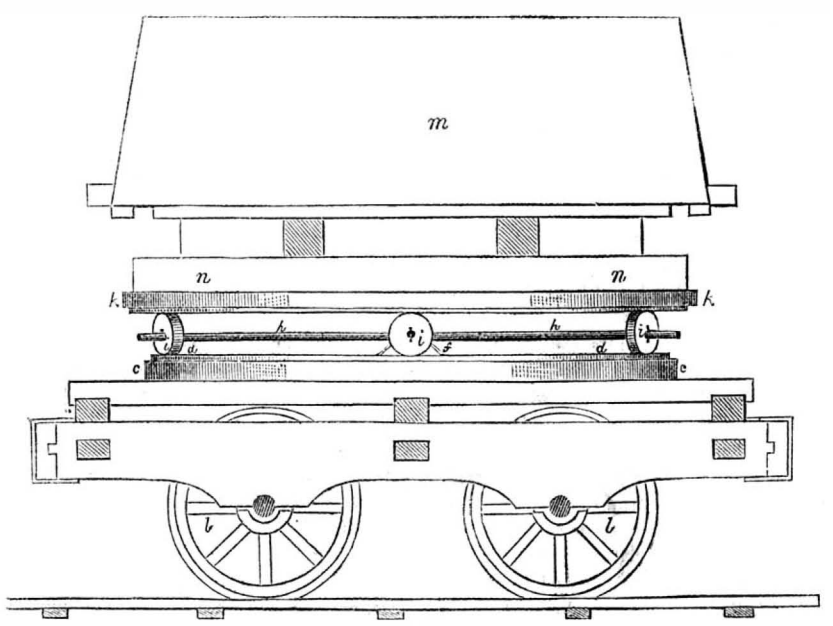


The accompanying engravings represent improvements in Dumping Cars for railroads, invented and patented by Mr. Granville Palmer, of Greenbush, N. Y., but who has assigned all his right, title, and interest to Mr. R. R. Finch, of Peekskill, N. Y.

Figure 1 is a side elevation, and figure 2 is an end elevation. The same letters refer to like parts. The improvement consists in applying between the box or receptacle for the earth, &c., of the car, and the body or carriage frame of the same, a turning table or apparatus to permit the free turning of the box in any direction, so that the earth, gravel, &c., may be deposited on any desired part of the road.

a a a a is the body or carriage frame of the car, constructed in the usual manner, and having wheels, *b b b b*, connected to it in the ordinary way. *c c* is a circular railway arranged on the top of the body, and having an iron rail, *d d*, secured on its upper face by screws, nails, or otherwise; *e* is a vertical or upright metallic shaft, firmly attached at its lower end to the body of the car, said shaft being held firm, or sustained in its position, by the metallic bracing shoulder, *f*, figure 2, which is likewise secured to the body of the car. The shaft, *e*, passes through a suitable lever in the centre of the spider or axletree frame, *g*, (so that said spider or frame may turn freely on said shaft), the arms, *h h h h*, of

Figure 2.



which, at their ends, serve as axletrees for the friction wheels or rollers, *i i i i*, which rest and move on the rail, *d d*. A circular plate, *k k*, somewhat larger in diameter than the railway, *c c*, is arranged above the spider or frame, *g*, so as to turn easily on the shaft, which passes through a suitable hole in the centre of said plate. A circular metallic rail or bar is attached to the under-side of this plate, *k k*, so as to rest upon the rollers, and on the top of said plate the usual frame-work, *n n*, for elevating the box, *m*, of the car, is firmly attached, said car box being hung on the same in the usual manner.

It will readily be perceived that, by the above specified arrangement of machinery, the car box may be turned to any desired position on the body or carriage frame, and the contents be deposited at any part or point of the road.

The following is the claim of the patent :—

"I claim arranging a turning apparatus between the body or carriage frame of a railroad dirt car and the box of the same, substantially as above set forth, so that said box (or mouth of the same), may be turned to any particular part of the road, and the contents deposited thereon."

Mr. Finch offers to sell rights of States, &c., and more information can be obtained about the same by letter.

Diving for Shells.

The following extract from "Rovings in the Pacific, a new work, relates the manner of diving for shells at the "Bow Island," so named by Cook :

"On arriving at the reef or knoll, the boat was secured by its painter to a projecting branch : and the divers proceeded to dive from it in all directions and, as they brought up the shells, so they threw them into the shallow water on the knoll until the shells became scarce; or they became tired and wanted to pull into another station. Shell-fish of various descriptions are attached to and wedged in the coral branches, apparently having grown with their growth. On a still calm day you may see to the bottom at ten or twelve fathoms, and the shell-fish when feeding reflects tints of the most brilliant and beautiful hue; and fish of every conceivable form and color may be seen sporting in the interstices of the coral branches.

It is a curious sight to watch the divers; with scarcely a movement they will dart to the bottom like an arrow, examine beneath every protruding rock, and on continuing their investigations, by a simple movement of the arm will propel themselves horizontally through the water, and this at the depth of seven or eight fathoms. I timed several by the watch; and the longest period I knew any of them to keep beneath the water was a minute and a quarter, and there were only two who accomplished this feat. One of them from his great skill, was nick-named by his companions the "Ofat," (stone.) Rather less than a minute was the usual duration. In fine weather they can see the shells, when, if the water is deep, they dive at an angle for them; and as the shells adhere firmly to the coral by strong beards, it requires no little force to detach them. I was astonished on one occasion at witnessing a diver, after one or two ineffectual attempts to tear away a large oyster, sink his legs beneath him, and getting a purchase with his feet against the coral, use both his hands and fairly drag it off. When they dive in very deep water, they complain of pains in the ears, and they sometimes come up with their noses bleeding; but it is rarely that you can get them to attempt such diving, let the shells be ever so abundant, they will come up and swear there are none; the exertion, from the great pressure, is too painfully distresssing. It has frequently happened, after a set of worn-out divers have sworn that no more shells could be obtained, that a fresh set has come and procured from fifty to sixty tons, without difficulty."

Chloroform a Propelling Power.

Experiments with chloroform as a propelling power, in the place of steam, are now making in the port of L'Orient, and there is reason to hope, from the success which has already attended them, that they will result in causing a considerable saving to be effected in cost and in space.—[Galignani.

[Mr. Galignani, chloroform is too sleepy a gas to compare with steam.

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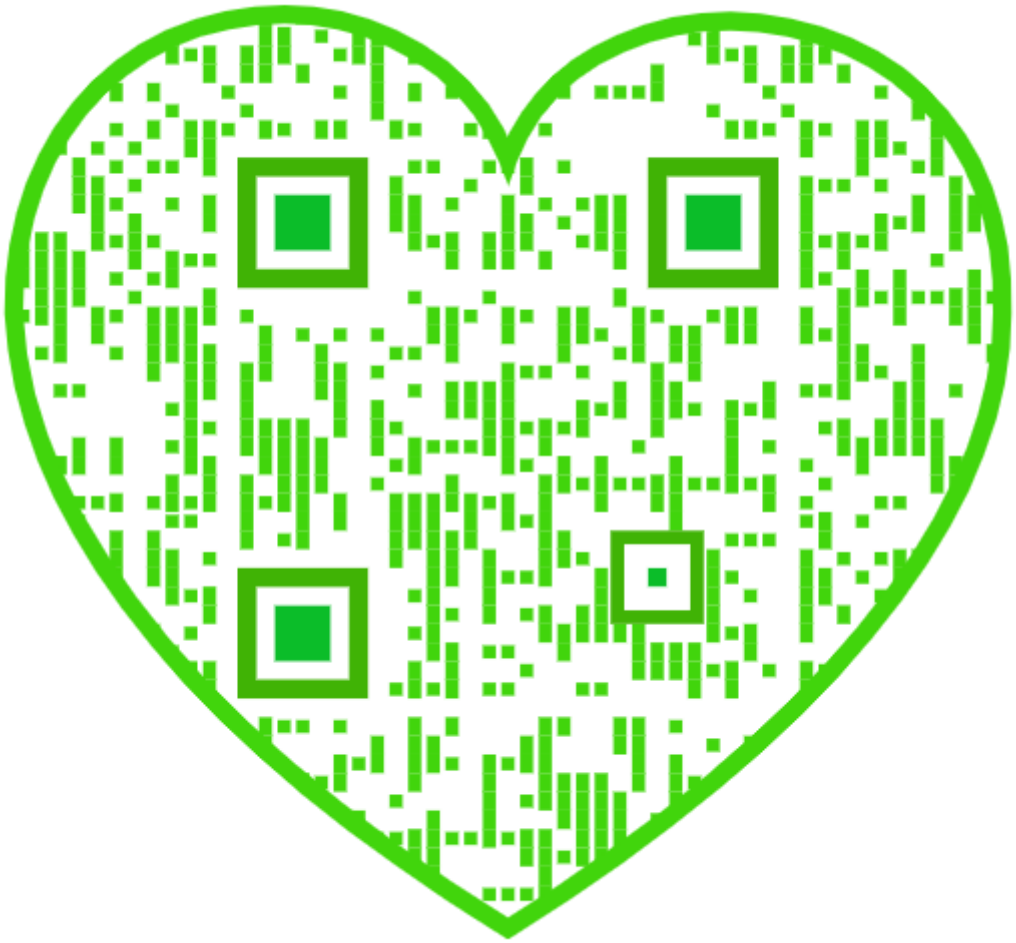

Miscellaneous.

Special Correspondence of the Scientific American.

London Firemen, Fire Engines, &c.

LONDON, June 27th 1851.

There has been a display of Fire Engines at the Crystal Palace, and a very interesting trial of the merits of some of them took place last week on the north side of the Serpentine. A large body of the London Fire Brigade, and a company of Foot Guards were selected to work them. There is one Canadian Fire Engine, built in Montreal, which was compared with the London Engines, and proved superior. It is built in the same style, exactly, as the old New York Engines. This engine was tried against two of the English Engines combined, and discharged not only a greater quantity of water, but threw it to a greater distance. How I wished that some of the New York or Philadelphia Engines had been here: I think it is a shame that they are not. In Fire Engines the United States excel, but who knows about that here? People think the Canadians are ahead of us. I am confident that a New York Fire Engine would have come off bearing the bell. I should statehere that the Canadian engine was much larger, being 16 inches stroke, or double that of the London ones. In the streets of London, the small compact English engines, answer well, as they take up but little room, and they do wonders for their size. The London Fire Department, or Brigade, as it is called, is very differently managed from that of New York. It is under the superintendence of a Mr. Braidwood, a Scotchman, who planned the system. He is employed by the London Insurance Companies under contract, he furnishing the engines and men, and keeping up the system, they paying so much according to the property they ensure. The men have uniforms—a black leather Roman helmet, and trim blue frock coat with standing collar. In undress they wear caps. There are six men, I think, employed for each engine—they do nothing else but wait upon and manage it: some of them always sleep in the engine houses, and are "ever ready." They do not drag the engine to a fire—two horses, day and night, stand ready at a moment's warning to be hitched to the machine, and their evolutions are exceedingly rapid and well directed. The men are a fine set of fellows, trim, irony, and active: they are paid very good wages, and have mostly been London watermen. They do not work the engines—the crowd at the fires do this; the men from the crowd are selected and paid one shilling sterling per hour for their labor; they are managed and directed by the regular firemen, and plenty of stout fellows can be selected at every fire. The regular firemen of the Brigade mount the ladders and manage the hose. They are very daring and supple; they run along roofs and climb along from window to window like cats. The Fire Brigade is a model one, certainly,—the Scotch superintendent is an engineer, a keen, wiry, Paul Jones looking chap. There are other companies in London, such as the "West of England Brigade," but it cannot compare with the London Brigade. There is a Fire Engine in every barrack; the soldiers turn out at the fires, and are a very efficient set of firemen, especially the "Sappers and Miners." They are very intelligent soldiers, being generally selected for their mechanical qualities. The small London engines are said to be better adapted for this city than larger ones, as they take up only about one-third the room of a common New York engine. They say, "we can get two streams quicker on the fire than one large one. This is true; but a large ten-inch New York cylinder, or one of Agnew's Philadelphia cylinders, can send a stream of water 80 feet higher. I am partial to the large engine, but they say the large ones have been tried in London, and were not so useful as the small ones. There are two huge floating engines kept on the Thames, by Braidwood: each one will take more than a hundred men to work it; they are but seldom used. The London Corporation has not to pay the expense of the Fire Department—it is borne by the gentlemen of the "Fire Insurance Companies," who, by a very sensible policy of John Bull, are made to do something for their own property. In the trial which took place between the London and Canadian Engines, the men did their work well and systematically. At fires there is no confusion and no noise; the Superintendant is always on hand, and is a man who appears to be everywhere at once.

I do not know whether the same system exists out of London, or not, but probably will find out by-and-bye, if I wander further over this Isle. What I have said will no doubt be new to many of the readers of the Scientific American, as the Fire Brigade system here is so different from the one in which, for a number of years, I did good service as high private, corporal, segeant, &c., &c.

EXCELSIOR.

The Electric Telegraph in the East Indies.

The "Friend of India" says:—"The local papers have just announced that intelligence has been received from Diamond Harbour by means of the electric telegraph. The direct communication was opened between that station and Calcutta on the 3rd inst., and it is found to have succeeded most completely and satisfactorily. It is as superior in precision as it is in speed, to the old semaphore; besides which it possesses the advantage of being available in all weathers. The half-educated boys who have been trained in the novel science of signalling have sent up the names of French vessels, of their commanders, of the port, and the date of departure, with singular accuracy, though most of the words were in French. In the infancy of our operations it is found more advisable to adopt the system of spelling, because though very slow and difficult, it is far more certain than the use of numbers. We have now to wait the effect which may be produced by the heavy rains of the next rainy season upon the experiment, before any confidence can be placed in its success. Should the result correspond with our wishes the question may be considered ripe for decision, and it will then be for Government to decide whether the sum of seven lakhs and a half of rupees shall be expended for two successive years in the establishment of a line embracing Calcutta, Agra, Bombay, Simlah, and Lahore. All that appears at present to be required to give these stations news from London within the month, and to render the supreme Government ubiquitous, is £150,000, or the amount of two days gross revenue of this empire. Indeed, as the last intelligence from England—that of the 7th of March—reached Bombay in 27 days, it would have reached Calcutta by means of the telegraph in the same period. There is every reason to believe that the telegraph here will prove successful. The simple composition which Dr. O'Shaughnessy has used as coating for the wire appears little affected by damp. It has apparently triumphed over our two greatest enemies—the heat and humidity of the climate. It is formed simply by boiling one-fourth of resin with three-fourths of fine sand. As soon as the compound is cool it becomes as hard as a stone. It is adapted for roofs. We have exposed it on a piece of wood for three days to the burning glistering sun of April, and have buried it in water for two days together, without the slightest deterioration of its consistency."

[We wish to direct attention to Dr. O'Shaughnessy's composition for coating wires. It appears to us that this same composition would make excellent pavements around houses, such as for the courtyards, alley and garden walks. It is well worthy the trial by some of our enterprising people. We know that roofs have been covered with pitch, and gravel and sand padded in on the surface—we like this new method better, and have no doubt of its good qualities.

Some years ago, a person requested permission of the Bishop of Salisbury, in England, to fly from the spire of the church. The good bishop, with an anxious concern for the man's spiritual, as well as temporal safety, told him he was very welcome to fly to the church, but he would encourage no one to fly from it.

Deafness Successfully Treated by Musical Sounds.

A very singular letter has appeared in the London Medical Gazette, from Dr. Turnbull, detailing his experiments in the treatment of deafness by musical sounds. He says:—

"No disease to which the human frame is subject has remained in greater mystery than that connected with the organ of hearing. This may be one of the reasons why medical men have deserted this branch of the profession, and almost left it in the hands of the empiric.

The greater number of diseases to which the ear is subject arise from exposure to cold, obstructing or altering the quality of the secretion of the wax, and thereby exposing the tympanum to the atmosphere, producing torpor of the auditory nerves, more especially in the nerves connected with the membrane tympani, which may be compared to a musical instrument of the first order, capable, when in health, of receiving the highest or lowest notes produced by the undulation of the air.

I have found no difficulty in producing a healthy ceruminous secretion, by taking off pressure by means of the pneumatic extractor. When the wax is re-produced, the hardness of hearing is greatly mitigated, but still there remains a sensible imperfection of hearing, called by the patients muffling, and often accompanied by the most distressing sounds. This led me to institute various trials to remove this morbid condition, and I am enabled to state that the hearing may be perfectly restored by introducing into one ear an Æolian pitch-pipe, or other properly-adapted musical instrument, and containing the vibrations within the ear, which must be well closed. It will then be necessary to proceed in a similar manner with the other ear. This plan of treatment ought to be continued a week or two after the patient's recovery, and left off with the lowest note. It may be well to state that no good effects can be derived from this method unless the vibrations be confined chiefly within the ear, so as to localise their effects.

It is right also to presume that the vibratory mode of treatment will fail to be permanent in its effects unless the healthy secretions be first restored. The cases in which success is greatest are those in which the ticking of a watch can be heard when pressed upon the temple bones, and those in which hearing is temporarily increased during the bustle and noise that prevail more or less in the open air, or in carriage or railway travelling as long as the vibration is kept up.

This plan of treatment generally removes disagreeable noises in the ears and head in chronic and nervous deafness.

The Dells of the Wisconsin.

The Dells of the Wisconsin are a narrow passage of the river through high and perpendicular rocks above Arena. The narrowest and most rapid place is near what is known to the raftsmen as "The Elbow." It is a little over fifty feet in width. The depth is variously stated by those acquainted with the river, at from 50 to 100 feet. The river is, at high water very rapid, and rafts are sometimes stoven; but in low water it is perfectly safe for rafts and steamboats. The chasm has doubtless been formed by some mighty convulsion of the earth. The strata of rock, which is composed of sand, exactly correspond on the two sides of the river. Many similar chasms are found in the vicinity, their edges lined with pines, oaks, and white cedars. Near the dells are found traces of cultivation, which correspond with the French method of farming—the earth being thrown up in straight parallel ridges, four or five feet apart, and now covered wtih oak trees of more than a century's growth. Four or five miles below the dells are antiquities of a still more ancient date, consisting of those mounds or embankments which so much puzzle the student of American antiquities. They are regular in shape and vary in height from four to eight feet.

American Flour.

The "American Miller," in answer to our interrogation about the character of American flour, some of which could not be sold for $4 less than the Trieste kind, says there are two barrels of it consumed in England for one from any other country, but there is no country in the world that manufactures so many different qualities of flour, owing to the great improvements in machinery, which is not the case in other countries. This is undoubtedly the truth of the whole matter.

Scientific Memoranda.

FRENCH AND ENGLISH SKILL.—The Bulletin de Paris says—"M. Thiers has returned to Paris from London full of admiration of the wonders at the exhibition, of which, he says, none of the writers in the French Journals have succeeded in giving anything like an adequate idea of its grandeur and magnificence. He spent nine days there, amongst the most eminent manufacturers and professional men, who, pleased to meet with so superior an intellect, gladly gave him every explanation. M. Theirs asserts there can be no dispute as to the high position France holds at the exhibition, especially in her silk manufactures. He was struck with the fact that France is pre-eminent in all the articles of luxury, which none but the wealthiest can buy; whereas England excels in the productions usually consumed by the middle or poor classes. Thus democratic France works for the rich, and aristocratic England works for the poor. Since his return, M. Thiers has frequently expressed to his friends his admiration of the exhibition, and he expatiates on the importance of this great page of industrial history as a means of showing the progress of civilization and giving it a fresh impulse

IRISH SPINNING.—A remarkable specimen of what can be done by the human hand, in producing linen yarn of wonderful fineness, on a common wheel, is now to be seen at the Northern Whig office, Belfast. The sample consists of two cuts and five threads, and is spun to the fineness of eighty-six hanks to the pound. It is very even in the threads. The spinner has executed this wonderful specimen since the opening of the London exhibition; and she is now eighty-six years of age!

PLANETARY INFLUENCE ON EPIDEMICS.—John S. Bowron, M. D., late Hospital Commissioner in the State of New York, has written a pamphlet to prove that the motions of the planets and other celestial bodies exercise an influence on the production of epidemics, and affect the nature and treatment of diseases. This was the doctrine of the astrologers of the last century *et ante;* but Dr. Bowron calls in the lights of modern science to sustain this theory.

Discovery in Egypt.

A most interesting discovery has been made in Egypt. It is known that there exists in Mount Zabarah, situated on an island in the Red Sea, a mine of emeralds, which was formerly worked by the pachas of Egypt, but was abandoned in the last years of the reign of Mehemet Ali. An English company have solicited and recently obtained authority to resume the working of this mine, which is believed to be still rich with precious stones. The engineer of the company, while directing some important excavations in this place, has discovered, at a great depth, traces of an ancient gallery, which must evidently be referred to the most remote antiquity. Upon removing the rubbish, they found tools and ancient utensils, a stone upon which is engraved a hieroglyphic inscription, now partially defaced. This circumstance proves the truth of opinion expressed by Belzoni, on the strength of other indications, that this mine was worked in ancient times.

The nature and form of the implements discovered, and the configuration of the gallery, the plan of which has been readily traced, prove most conclusively that the ancient Egyptians were skilful engineers. It seems from the examination of the stone which has been discovered, that the first labors in the mine of Zabarah were commenced in the reign of Sesostris the Great or Ramses Sesostris, who lived about the year 1650 before Christ, and who is celebrated by his immense conquests, as well as by the innumerable monuments with which he covered Egypt.

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The Principal Cause of the Explosion of Steam Boilers.

Nature, when perfectly understood, is always extremely simple in her operations; and when the causes are perfectly comprehended, there is seldom much difficulty in accounting for effects. It is therefore necessary, in order to account for the bursting of steam boilers, to investigate the effect of heat applied to steam, both with and without water, in the same vessel.

Water boils at the temperature of 212° Fah., and the pressure of the steam on the inside of the boiler, is then just equivalent to the pressure of the atmosphere on the outside, or it is between 14 and 15 pounds upon every square inch; and the boiler consequently sustains no bursting force. But if this steam be then heated to 250½=212+38½°, in contact with water, one pressure on the inside of the boiler becomes equivalent to two atmospheres, and the boiler sustains a bursting force of between 14 and 15 pounds, acting on every square inch of its internal surface. Again, if water be heated to 400° in an air-tight vessel (such as Papin's Digester,) without permitting it to boil, and the cover be then opened, about one-fifth of the water rushes out in the form of steam, and the remaining four-fifths instantly cool down to 212°. Consequently the steam has carried off from each of the four-fifths of the water remaining in the vessel 400—212=188° of latent heat; that is, 188×4+188+940° of latent heat has disappeared. (Lavoisier states it at 1000°, Count Rumford at 1040·8°, and Watts at 940°.) That this quantity of heat was latent, in the vessel, is proved by the fact that if a thermometer be held close to the orifice from which the steam escapes, it rises only to 212°, but at a little distance from this orifice it rises to 400°: hence, it is manifest that to raise water to the boiling point of 212°, that water must receive at least 940° of caloric, or latent heat, to convert it into steam of 212°, provided the quantity escaping from the digester be correctly stated.

Water converted into steam of the temperature of 212°, occupies 1698 times the space occupied by the water, from which it was generated; and if this steam, confined in a close vessel containing water also, be then heated to a still higher degree, more and more of the water will be converted into steam, and its elasticity, and consequently its bursting pressure against the inside of the vessel, will of course advance *pari passu* with the diminution of the water on which the steam floats, and an increasing quantity of steam will be generated, until all the water has been converted into steam, and the quantity of caloric rendered latent amounts to 940×5=4,700°, or, perhaps, to 1,040·8×5=5,204°, which, at that moment, will have attained its maximum elasticity, and exert a bursting pressure of nearly 20,000 pounds upon every square inch with which it is in contact, supporting a column of quicksilver 3,242 feet high—a pressure which no vessel man has ever constructed can sustain; and which, in the earthquake, heaves the solid crust of the earth, and even mountains from their base.

Doctor Thomson states, in his Chemistry, that when steam of the temperature of 212° is heated to 419°, without the presence of water, it expands only 37 times its former volume; and, at the temperature of 500°, its volume would not much exceed that of the water from which it was generated. Mr. Perkins gradually injected water into steam heated to 1,400°, gradually setting free the latent heat it contained, or in other words, gradually increasing the quantity of steam, till the elasticity and pressure were augmented to one hundred atmospheres, or between 1,400 and 1,500 pounds upon every square inch of the containing vessel, without supplying any additional quantity of caloric.

If, then, steam, without the presence of water, condenses, and consequently is made to occupy less space and exert a diminished bursting force, with any any every increasing dose of caloric, it does not seem to be so difficult to account for the bursting of steam boilers, the great cause of which has baffled the scientific world so long, as is generally believed.

We generally read:—"The boat had just cast off," &c. Now, suppose a boat stops, and the firemen fill the furnace "to put her under good headway in the start." But the valves are closed—no more steam is condensed; and the pump being also idle of course—the reservoir is neglected, and the boiler consequently receives no more water—the damper being insufficient to check the fire, especially if the fuel be stone-coal. What now is the effect? Plainly the water in the boiler is rapidly converted into steam, which decreases in volume as its concentration augments, till it no longer sustains the pressure of the atmosphere upon the outside of the boiler; and the boiler is crushed, *i. e.*, collapses. Or, if the concentration of the steam does not proceed to this extent before the boat starts: then, the steam passing through the cylinder, the air-pump exhausts the reservoir in whioh the steam is condensed (converted into water) and re-conducted to the boiler—the overheated steam, uniting with this, increases its own elasticity and pressure, raises the float, opens the water regulator, and admits more water, which, uniting with the rest of the highly concentrated steam increases the quantity of this in the boiler, and a violent explosion is the inevitable result; for even the safety-valve, contrived for letting off a gradual surplus, is totally inefficient to let off the enormous quantity of steam so suddenly generated.

Such seems to me to be the principal cause of the bursting of boilers, and as I never have seen any position like it stated, you will confer a favor by publishing this, provided the suggestion be new or you think proper; I have seen the explosion attributed to a deficiency of water in the boiler, and many other conjectures, but this alone could only be the cause of a collapse, if I am right, though it would evidently also weaken the boiler itself in consequence of its becoming overheated, so soon as the water is all converted into steam.

Howell, Mich. H. R. S.

For the Scientific American.

Interesting about Railroads.

WASHINGTON, PA.

Knowing that you take an especial interest in the progress of improvement in various branches of industry, science, internal improvements, &c., throughout our country and the world, I have been desirous of giving, in some favorable way, a notice in the "Scientific American," of a contemplated railroad, which is now attracting a good deal of attention, and which promises to be one of the most important thoroughfares in the United States. It is known that the great Central road of Pennsylvania, from the city of Philadelphia, is in a considerable state of forwardness, and will ere long be completed. Connected with this road, and diverging from it at Greensburg, in Westmoreland county, about thirty miles east of Pittsburg, a company has been organized, called "The Hempfield Railroad Company," to construct a road from that point directly through Washington, in Washington county, to the city of Wheeling, where it will connect with the Central Railroad of Ohio, which passes through Zanesville and Columbus, in the direction of Indianapolis, and will be extended through Terre Haute to the city of St. Louis. From Zanesville, on the line of this Central Railroad of Ohio, a company has been incorporated to construct a road through Lancaster, Circleville, and Wilmington, directly to the city of Cincinnati. An inspection of the map will satisfy any inquirer that this route will be by far the shortest of any road now in progress or in contemplation, between the cities of New York, Cincinnati, and St. Louis, and promises to secure to it an immense amount of trade and travel from the growing West. It will be found, on examination of the map, that an air-line, drawn from St. Louis to New York, passes nearly through Columbus, Zanesville, Wheeling, Washington, and Greensburg, and thus a particular scrutiny may be invited as to the merits and claims of this new line of communication, as it is believed that it possesses claims superior to any other line which has been proposed or which is now in existence.

The Hempfield Railroad, forming the connecting link between the Central Railroad of Pennsylvania and the Central Railroad of Ohio, will be less than 80 miles in length, and passes through a fertile, well cultivated, productive, and thickly settled region of country. Its location and construction have been placed under the charge of Charles Ellet, jun., Esq., the distinguished C. E. who constructed the Niagara and Wheeling wire suspension bridges, and who is favorably known throughout the country as an accomplished engineer and efficient business man. He has examined the route of the road, and found it entirely practicable. By his recommendation the Board have authorized the definitive surveys to be made without delay, with a view to the early commencement and final completion of the work. It will go on speedily and promptly; and although this Hempfield link is a short one in the connection, it is believed that no one can be found in the country that will surpass it in importance, usefulness, or profit.

J. G.

For the Scientific American.

Chemical Affinity Illustrated.

TARTARIC ACID.—When wines are allowed to stand long undisturbed, they deposit upon the sides and bottom of the cask their *lees*, which consist principally of the tartrate of potash in combination with various earthy, oily, and coloring matters. From these the salt is purified by solution, filtration, and boiling with white clay. The pure salt thus obtained consists of the tartaric acid combined with potash. Its crystals, when powdered, form the cream of tartar—so much used in the manufacture of light bread without yeast.

The processes employed for the separation of the tartaric acid from its combination with the potash, afford a beautiful illustration of the operations of the natural law called chemical affinity.

The tartrate of potash, or cream of tartar, is dissolved in water and a quantity of lime is then mixed with the solution—a chemical action immediately ensues, in consequence of the superior affinity of the acid for the lime; the acid separating itself from the potash and uniting with the lime, forms the tartrate of lime, which, being insoluble in water, falls to the bottom of the vessel, leaving the potash in solution.

The solution of potash being now poured off from the tartrate of lime, the laws of chemical affinity are, again, made use of to obtain the pure acid in a crystalized state. To effect this object, a quantity of diluted sulphuric acid is added to the tartrate. The lime having a stronger affinity for the sulphuric acid than for the tartaric, leaves the latter, and, uniting with the former, forms sulphate of lime; this compound is also insoluble, and falls to the bottom of the liquid, which is then evaporated, and yields the pure tartaric acid in transparent crystals.

This acid is well known as the acidifying principle used in meads; also in the effervescing soda and siedlitz powders, combined with carbonate of soda. Here, again, the pleasant effect is owing to a law of affinity, by which the tartaric acid unites with the soda and leaves the carbonic acid to bubble up through the water in which the ingredients have been mixed.

H. W. H.

(For the Scientific American.)

Everett's Method of Blasting Rocks.

I have lately seen an improved method of blasting rocks, illustrated in the "American Artizan," and secured by a patent. The inventor offers to let one, or all, who want to put a charge in a rock that happens to be in the way, have the privilege, if they will contribute something for *his* comfort. I am now practising a method of charging rocks that is vastly superior to any patented method that has been used, and which I wish all to have the benefit of, and I shall exact no fees; the process is a cheap one, and is certain to tear the rock into pieces. Fill the hole from one-third to half its depth with powder; place a straw or tube filled with powder in the side of the hole, from the charge to the top of the hole (or a piece of blasting fuse will be just as good); then put a little dry sand on the charge—one-fourth of an inch is enough, this is to prevent accident. After this, place a round bar of iron, as large as will fill the hole, on the charge; let the iron be long enough to extend a few inches above the hole; then fill the space around the bar with dry sand; place a piece of timber on the top of the bar of iron, and place 200 or more pounds weight on it, being careful to press down the charge as little as possible in placing the weight on it. It is better to have the iron bar made with holes through it, and put a nail or pin through above the hole in the rock; the weight resting on the pin, instead of the charge; the pin being as small as will bear the weight, so that the explosion will break off the pin instead of moving the bar of iron. For a match, soak paper in a solution of saltpetre or gunpowder; take a strip an inch wide and four inches long, this will, in burning, give you time to walk twenty rods before the explosion, when you may return and see the havoc made with the rock which is thrown apart; and the iron bar, which you never expected to see again, is where the hole was, not having been moved out of its place. If the hole is horizontal the weight may be put against the end of the iron bar, and the effect is the same. I have tried this method hundreds of times, and never had a single charge fail of breaking the rock. The common method of charging, by driving stone or brick into the hole, is unsafe, is liable to blow out, and ought to be laid aside. I hope that all papers wishing well to others, will publish this method of blasting; any information that will prevent accidents from the use of gunpowder ought to be given to the world, and used till a better method is discovered.

ADDISON EVERETT.

Middlefield, Mass., June 10, 1851.

Remarkable Automaton Tree.

We had an opportunity, says the Wolverhampton Herald, (England,) of inspecting, at the bazaar of Mr. Cheetham, on Thursday last, an automaton, as novel in its action as it is beautiful in design. This remarkable piece of mechanism consists of a hawthorn tree in full bloom faithfully copied, the crusted or semi-perished bark on the trunk, and the foilage, being most naturally imitated; and on several of the branches stuffed humming birds are perched, which, now waving their wings and anon hopping from spray to spray, and pouring forth a flood of music, almost charm the spectator into the belief that it is a pleasing reality, and not an illusion, which is presented to his admiring view. One of the tiny creatures jumps from one branch to another in pursuit of flies and insects—another lies basking on one of the hawthorn flowers, a third sits on its nest, whilst several others are disposed in different parts of the tree. The singing of the birds is not only accurate and natural, but the motion is also admirable—one of them flying from one branch to another, a distance of about eight inches, with the greatest possible precision, and alternately turning completely round in going or returning, and without anything being observed to cause such an effect, or even to discover the motion of this unique and elegant specimen of industrial art. On the base of the tree, which abounds in moss, tufts of grass, and the concomitant herbage (composed of a material which, above all others, appears least suited to the purpose) with a number of shells &c., &c., are a taniger and Chinese fly-catcher, both birds of beautiful plumage, and the latter is incessantly pecking the carcase of a golden beetle amongst the moss in the foreground, now and then stopping to swallow, what he may have managed to cull with his slender beak. The artist has achieved a work of which he may be justly proud, the *ensemble* being such as to strike the beholder with involuntary wonderment, whilst the most erudite ornithologist or professor of botany would fail to distinguish the imaginary from the real at first sight. The whole is enclosed in a glass case, and has been produced by that renowned Parisian, Stevenard.

By the late news from Europe, cotton had fallen in price; this makes the cotton manufacturing trade dull. Few buy where prices are falling.

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New Inventions.

New Planing Machine.

We learn by the Albany papers that Mr. Geo. W. Beardslee has now one of his recently patented planing machines finished and in operation. The machine was constructed at Townsend's Foundry, an establishment that will not let a piece of bad work pass out the gate, and a trial of its merits has been highly spoken of. On this trial it turned out fifteen-inch plank at the rate of 120 feet a minute, giving it a smoothness and evenness of surface, the most perfect, and a polish far better than could be given by the hand plane.

The knives or cutters are stationary but elastic, and the plank is carried through by a connected series of platforms, which, by an eccentric motion, reversing the course of each, performs all the functions of an endless chain. The plank is placed laterally (instead of horizontally, as in Woodworth's machine) and so is less liable to obstruction. The cutters are so combined as to throw off the shavings and keep the action of the machine free. We expect to be able to publish an illustrated description of this machine in a few weeks.

Gravitating Hotel Enunciator.

Mr. L. A. Hudson has invented and taken measures to secure a patent for an improvement in enunciators for hotels, the name given being that mentioned above. It is stated to be much less expensive to construct and much easier kept in repair than any heretofore constructed or in use. He does not employ slides worked by cranks, like the common enunciator, but light balls as substitutes for the slides, and these are so arranged that a person in a room, by simply touching a wire, makes a ball come popping forward in the bar-room, saying, "Mr. Waiter, your presence is wanted in No. 11," or 12, or whatever room it may be.

Improvement in Boilers.

Mr. W. J. McAlister, of Columbus, Muscogee County, Ga., has taken measures to secure a patent for an improvement in steam boilers, in which the fire box has a double casing at its front and sides, for containing water, and which communicates a branch pipe with the bottom of the boiler and sides.

Swan's Water Wheel.

Mr. Nathaniel Swan, of Knox, Albany Co., N. Y., has applied for a patent for an improved water wheel, having the single disc with buckets placed upon it in such a manner that the wheel obtains, it is said, a greater leverage according to their size in comparison with others in use,—the buckets are placed in the direction of levers tangent with the circle.

New Seed Drill.

Mr. Enoch Boughton, of East Bloomfield, Ontario Co., has taken measures to secure a patent for an improvement in grain drills for sowing seed broad-cast, which is a very excellent improvement. The grain passes down through suitable tubes, after which it strikes upon rods underneath, and is scattered right and left in a broad-cast manner on the earth.

Improved Rotary Pump.

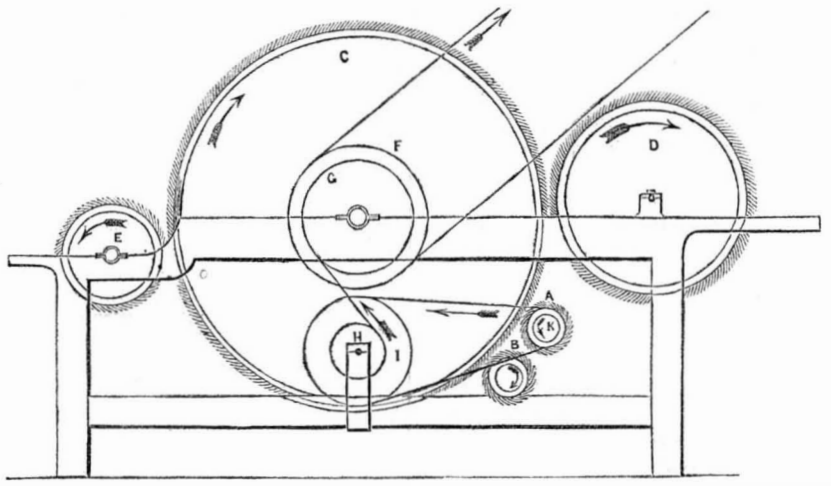
Mr. L. H. Meseley, of Poughkeepsie, N. Y., has invented and taken measures to secure an improvement in rotary pumps. This has some points of resemblance to the eccentric pump, it being nearly the same, but has its interior wheel hung *concentrically* on its axis, but works eccentrically in the inside of the cylinder in combination with pistons or sweeps hung on the pin concentric with the cylinder.

The India Rubber Shoe Trade.

A statement has been published respecting the manufacture, cost, quality, and profits of the India rubber shoes, under Goodyear's patent, which is astonishing. The first cost to manufacture ladies' shoes is about 22 cents per pair, and the retail price is one dollar. The first cost of those for mens' wear, is from 33 to 38 cents per pair. The daily product of the United States is over 15,000 pair. The process by which these shoes are made has thus far been kept a secret. This art is of great value and has not yet been discovered in Europe. The profits on this business will reach almost two millions of dollars in the year, and the present manufactories cannot supply the demand. Shoes which weigh nine ounces per pair have only about three and a half ounces of rubber, the other materials being worth only from one to six cents per pound. One girl can make from twenty to thirty pair per day, for which her wages are two to three cents per pair. The expense of curing or heating twelve hundred pair does not reach three dollars.

[The material commonly used for mixing with India rubber to make black overshoes, is lamp-black. It is mixed with one third or even less of India rubber. Goodyear did not make the discovery of this mixture. The curing of India rubber goods by steam heat, is said to be an English discovery. The India rubber controversy is a complicated one.

DYSON'S PATENT CARDING ENGINE.---Figure 1.



The accompanying engravings represent an improvement in the Carding Engine, commonly employed in cotton or woolen factories for the purpose of stripping and clearing the main cylinders of such carding engines while running. It is the invention of Mr. J. Dyson, of Fulton, S. C.

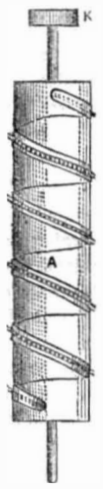
The principle of the said improvement consists in the employment of two cylinders, surrounded or clothed with teeth of metal, in the form of wire or other forms adapted to the end in view, mounted with proper journals in suitable bearings, below the main cylinder of the carding engine at any convenient point between the feeder or licker, and the doffer cylinder, and driven by the main or other shafts of the carding engine; and so adjusted as to operate upon the surface of the main cylinder, and upon the surface of each other, and to strip and clear the main cylinder to the extent required, and to return the strippings to the main cylinder, to be carded over, and to be delivered to the doffer cylinder,—it being a leading principle in the said improvement, to adjust the number or quantity of the teeth in the stripping or cleaning cylinder, in such way as to cause it to remove the stripping in such limited quantities in each revolution of the main cylinder as will always enable the latter to deliver a sufficient amount of the carded material to the doffer cylinder, and with due regularity.

Mr. Dyson constructs a cylinder of wood or metal, one or both, of a convenient size, to form the stripper, say from three to six inches in diameter and of a length equal to that of the main cylinder, having it turned perfectly true and suitably prepared for receiving the teeth of metal in the form of wire, or any other form desired, and adapted to the end in view. If teeth of wire are employed, he prepares a narrow fillet of leather, and inserts therein one, two, or more rows of teeth of the usual form and size of card teeth, or coarser if desired. This fillet of wire teeth is fastened at one end of the cylinder, and carried spirally round the cylinder, and fastened at the opposite end, being secured throughout the intermediate space by tacks or otherwise, thus forming a perfectly regular spiral fillet of teeth around the whole length of the cylinder, as shown at A, fig. 2.

The cylinder, A, thus furnished with the spiral fillet of wire teeth, and ground and sharpened after the manner of card cylinders, is next mounted with proper journals in suitable bearings under the main cylinder, C, at any convenient point between the feeder or licker, E, and the doffer cylinder, D, and in a parallel direction with the main cylinder, C, as shown in figure 1, the teeth of the spiral fillet being set as near those of the main cylinder as possible, without touching, and pointing in an opposite direction to those of the latter, is also made to revolve in an opposite direction to it, and at a speed causing the surface of the teeth or periphery of the stripper, A, to outrun the surface or periphery of the main cylinder, C, about one fifth or one-fourth, if so much be necessary.

He also constructs another cylinder, B, termed the receiver and forwarder, of about the same dimensions of the stripping cylinder, A, and clothed with card filleting of the same description as usually employed for small cylinders of carding engines, and in the same way with the teeth set in an opposite direction to those of the main cylinder, which, being ground and sharpened in the usual manner, is mounted with proper journals in suitable bearings under the main cylinder, C, and immediately in advance of the stripper, A, and parallel thereto, and in the direction of the licker, E, as seen in figure 1, the surface of the teeth being set as near as may be without touching,

Fig. 2.



and made to revolve in the same direction as that of the main cylinder, C, or in an opposite direction, as may be most convenient, but at a speed greatly below it.

The following is the claim of the patent:—"I claim the cylinder, A, surrounded or clothed with a spiral fillet of metal teeth, in the form of wire, or with teeth of metal of the form and description mentioned and described in the fourth specification, as arranged and employed in the 3rd and 4th specifications, in combination with the main cylinder, C, and with the cylinder, B, or with the main cylinder only, to strip and clear the latter, by a self-acting contrivance, while the carding engine is in operation. I also claim the cylinder, B, in combination with the cylinder, A, and the main cylinder, C, as applied to receive the strippings from the former and to deliver them to the latter."

This improvement was patented in 1849, and the inventor is now fully prepared in every respect to sell rights, and all the information requisite about the same can be obtained by letter. It is no untried invention—it has been fairly and fully tested, and its merits acknowledged. It can be seen in operation in the Atlantic Mills, Lawrence, Mass., and in the Whittenton Mills, near Taunton, Mass. After three days running in the Atlantic Mills, without being stripped by hand, the cylinder was examined, and was no more filled up than when it had run ten minutes. Mr. Dyson has a factory in Fulton, S. C., and is a gentleman of great practical and theoretical knowlege.

Cotton Gins.

Messrs. Editors—As you are in the habit of noticing and remarking upon all the inventions of the day, I send you a rough sketch of a drawing from the Letters Patent of Mr. Lewis G. Sturdevant, granted in July, 1841. The number of the patent is 2,190. The drawing is by A. L. M'Intyre. Mr. Parkhurst sent a drawing to us (by request of the Agricultural Society of this place) of his Carding Gin, which so nearly resembles the one enclosed, that I thought it would not be amiss to acquaint you with the fact. There is a mystery in this matter of patents that some people do not understand.

Mr. Sturdevant makes his cards by cutting teeth on wire and winding it around a cylinder. He makes his roller or beater, as he calls it, by putting strips of iron lengthwise in a wooden cylinder. His brush is not unlike that of the common gin. But, in his specification, after describing his method, he says the teeth may be made in some other way, but they would in his opinion be more troublesome and cost more to repair them. His beater, he says, may be made of cast-iron, and channelled out of the solid metal for beaters.

Mr. Parkhurst makes his cards out of plate, with firm teeth, and places them close together to resemble cards. His roller is made of cast-steel, and channelled out of the solid metal. His brush is without bristles, but seems to occupy the same position as Mr. Sturdevant's.

Now, the simple questions I wish to ask, are, first, what is the difference between these gins? and, second, can a man make slight alterations and improvements on another's patent, and obtain exclusive right to make and sell such machines over the head of the first Inventor? Yours, John DuBois.

Greensboro', July 1, 1851.

[It is sometimes very difficult to give an opinion about the infringement of patents. The questions to be asked in the above case are, How much has Mr. Sturdevant invented? and, Does Mr. Parkhurst infringe upon his just claim? The claim of Parkhurst appears to us to be for what is called an improvement different from that of Sturdevant; here are his claims:—

Parkhurst's Claims.—1st. I claim arranging the metallic rings composing the burring cylinder, so near together that no burs or seeds, &c., can fall in between them, the rings having hooked teeth cut in the periphery, as described, and so placed around the cylinder as not to have the teeth on any two adjoining rings to come opposite each other, by which the wool or cotton is drawn in below the surface of the rings, and the seeds or burs are cleaned off. 2nd, I claim the combination of the cylinder, constructed as above described, with the feeding cylinders and trash cylinder, to separate the fibres of cotton wool from impure substances,

There can be no doubt but what Parkhurst's claim embraces the idea set forth in the remarks of Sturdevant's patent, viz., "the teeth made some other way—more troublesome, and cost more to repair them." There is no claim for Parkhurst's brush. The only way to settle such a question would be by putting Sturdevant's Gin and Parkhurst's together, and taking the opinion of gin makers and planters respecting the identity of the two. The Patent Office, no doubt, decided upon the dissimilarity of the two inventions. In patent trials, the opinions of experts are taken respecting the identity of the inventions at issue—the opinions of witnesses qualified to judge correctly, it may be said, decide all questions of infringement.

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Scientific American

NEW YORK, JULY 19, 1851.

Vulcanized India Rubber.

A very interesting India rubber patent case was decided on the 21st of last month, before Justice Williams and a special jury in London. The parties were Hancock vs. Somervile. As the India rubber controversy between Day and Goodyear has occupied a great deal of public attention among us lately, the merits of this case are of great importance in the United States. The action was brought for an infringement of Hancock's patent for vulcanizing and making goods of India rubber and its mixtures. The great manufacturer of India rubber in England is Charles McIntosh & Co., of Manchester, but the goods manufactured by them before 1842, were sticky and easily affected by heat. To remedy this evil, a Mr. Hancock had devoted time, study, and experiment in vain up to the year mentioned. It was then that an agent named Moulton, of Mr. Goodyear, in our city, (New York) arrived in England, and having introduced himself to Messrs. McIntosh, wished to treat with them concerning the sale and manufacture of articles in which the objections mentioned had been obviated. Messrs. McIntosh were unwilling to enter into any negotiations with Mr. Moulton, as he was not in the possession of the secret of Mr. Goodyear. After several interviews all negociations were broken off. Mr. Moulton, however, left some specimens of Goodyear's inventions with the Messrs. McIntosh, intimating that it was impossible for them to discover the secret, and that Mr. Goodyear was not at all apprehensive on that score. Mr. Goodyear did not take out a patent, and Mr. Hancock then (probably assisted by some hint he might have obtained from an examination of the specimens left with him by Mr. Moulton), commenced a series of experiments, which ended in the discovery, that by mixing the silicate of magnesia with the caoutchouc he could entirely obviate the clamminess and adhesiveness of the latter material. He then continued his experiments, and ultimately discovered that, by melting sulphur in an iron vessel at 250 degrees Fahrenheit, and then immersing sheets of caoutchouc prepared with the magnesia, and keeping them immersed until the whole attained a temperature of from 270 to 285 degrees, he could obtain every object he aimed at in his preparation. Having ascertained this satisfactorily, Mr. Hancock obtained a patent for his discovery on the 21st of November, 1843, and within six months enrolled his specification.

The following is the claim of Mr. Hancock's patent:—

I claim as my invention and discovery, first, the combination of caoutchouc with silicate of magnesia, whereby manufactured caoutchouc is rendered free from that clammy and adhesive character which it usually possesses; secondly, I claim the modes herein described, for combining asphalte with caoutchouc; and thirdly, I claim the heating of caoutchouc (either alone or in combination with silicate of magnesia or other substances) with sulphur when acted on by heat, and thus changing the character of caoutchouc, as therein described." This preparation of Mr. Hancock's, which was well known as vulcanized India rubber, entirely superceded the ordinary India rubber for all the purposes to which it could be applied, and the manufacture became a very profitable business.

Mr. Hancock, who is associated with Messrs. McIntosh, brought the action against Somerville & Co., they having imported a great number of India rubber overshoes and other articles from New York, and sold them in London. Hancock, it seems, purchased some of the New York articles from the defendants, and had them analysed, when it was discovered that the effect which rendered the caoutchouc insensible to the variations of temperature, &c., was due to sulphur. There was a quantity of oxide of lead mixed with it, but this, it was alleged, had nothing to do with producing the effect.

The defendants contended that there was no infringement, for they said that Goodyear took out a patent in London one month after Hancock, the composition claimed, being caoutchouc, sulphur, and oxide of lead, which latter material made the composition more compact in its nature, and rendered it more susceptible of polish than that of the plaintiff. This oxide of lead had, it was contended, so far altered the nature of the article, as to do away with any notion of its being an infringement. It was also submitted, in the course of the defence, that Mr. Hancock had acted unfairly in making use of Mr. Goodyear's manufactures in order to perfect his patent.

Numerous scientific witnesses were called to prove the difference in the two patents.

The plaintiff's counsel contended that the true invention was the combination of sulphur with caoutchouc, and exposing the mixture to different temperatures. The adjuncts, such as silicate of magnesia and oxide of lead, were merely secondary matters, which did not cause any alterations in the caoutchouc; and as in the two patents sulphur was used, the benefit must be granted to the first patentee, Mr. Hancock.

Justice Williams summed up briefly as follows, and we wish particular attention should be given to his charge:—

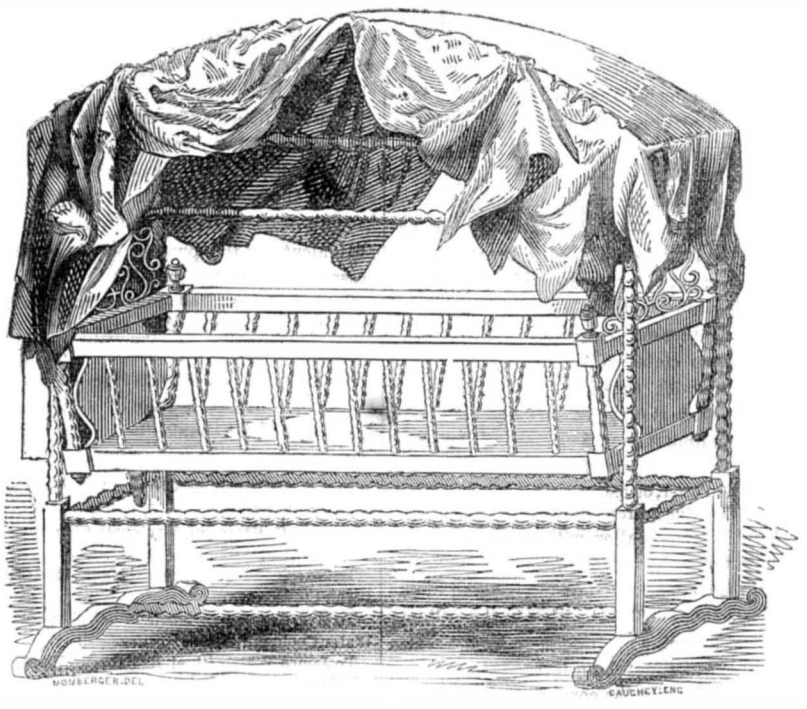
He said the jury first must say, was the fact of the defendants selling the article manufactured by Mr. Goodyear an infringement of Mr. Hancock's patent. That the article sold by the defendants could not be manufactured without adopting some portions of the plaintiff's inventions, he thought there could be no doubt. The second point to be considered was, whether the plaintiff's invention was a novelty when he obtained his patent. It had been proved in the course of the case that Mr. Goodyear had sent to England certain pieces of prepared caoutchouc, some of which had come into the possession of Mr. Hancock; whether those pieces were made in a similar way to Mr. Hancock's, was a matter for the jury; and if they thought they were, then they must say if they considered that they had been sufficiently before the public as to become public property, before the patent was obtained. It was not necessary that they should have been sold publicly; it was sufficient that the invention should have been known. If they thought that Goodyear's plan was known in any way to the public, or any portion of the public, prior to Hancock's invention, that would deprive the whole invention of novelty, and the jury must find on that point for the defendant, as the patent would be good for nothing. A third and last question for them was, had the plaintiff really completed his invention before he enrolled his specification? because, if he had not done so, as the specification was not enrolled until six months after his patent, then Mr. Goodyear's patent would have priority, as his specification arrived in England at the time his patent was obtained, which was not more than two months after the date of the plaintiff's patent.

The jury retired and, after a quarter of an hour, returned into court. They found, 1st, there was an infringement of the patent; 2d, that Mr. Hancock's was a new invention; and 3d, that the plaintiff had completed his invention before the enrolment of the specification. This was entirely for the plaintiff.

Mr. Goodyear seems to be exceedingly unfortunate in respect to his very valuable India rubber improvements. Perhaps it is carelessness, perhaps he is penny wise and pound foolish, but he has certainly paid dearly for the whistle. Had he taken out a patent in England before he so unwisely sent Mr. Moulton there, he would have been worth $60,000 more than he is to-day. No man, after his invention is completed, if he intends to take out an English patent, should dilly-dally for a single hour. If it is proven in an English court of justice, that the patent is a real improvement, all the tendency of feeling and policy is to protect the inventor or his agent.

The improvement of vulcanizing India rubber by sulphur, was secured by an American patent to Goodyear, in 1839, and yet he waited 4 years before he applied for his English patent, and this is the result. He has lost his money, and his own goods made by his discovery four years older than Hancock's, are prohibited from being sold in the very city where the Royal Turnip Seal was appended to his patent; he has managed his business badly—no doubt he is indebted to good friends for advice, but he knows best himself. It would be well however, if some people only knew where to go for good advice; if they did, their patents would certainly be better protected and bring them in more profits.

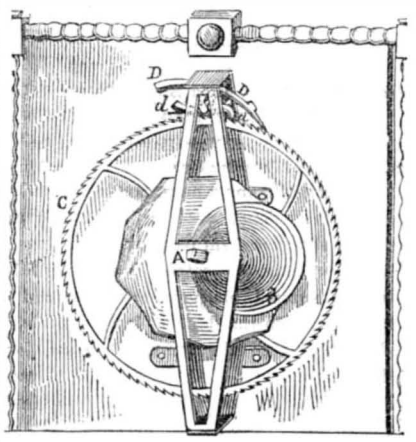
WALKER'S HOROLOGICAL CRADLE.---Fig. 1.



Having had occasion, recently, to use one of those indispensable fixtures to a well regulated household—"a cradle," for the benefit of one of the young sovereigns of the Republic, we deemed it to be our duty as a promoter of science and art—an advocate of improvement and invention, to use nothing less than *the latest improvement*, and here it is. Figure 1 is a perspective view, and fig. 2 an end view.

It performs the office of nurse, with the regularity of clock work—it rocks itself. This is done by a very excellent and simple arrangement and combination of clock machinery, whereby the cradle is made to act the part of a pendulum. The cradle is suspended like the ordinary suspension kind, but it has its axis of suspension passing through to the small frame outside, at one end of the cradle, represented in figure 2. This axis is exactly like that of a clock pendulum, and to it is secured two curved palls, D D, *d d*. These are the same as the pallets of a clock escapement. A is an arbor of a coiled spring, B, secured in the small frame, and on the inside end of which is the ratchet escapement wheel, C. The spring is wound up with a key, like that of a clock, and has a tendency to turn round the arbor, A, and thus move the wheel. It cannot, however, do this unless the cradle is set to swinging, for the palls hold the wheel, unless their axis of suspension is oscillated, to catch and let go the teeth of the wheel. When the cradle is set in motion, the pallets allow tooth after tooth of the wheel to escape, the coiled spring, B, by its re-action sustaining the swinging of the cradle until the tension of the spring—to use a good common expression—"has run down." Every body, we believe, will understand the mode of operation

Fig. 2.



by the description we have given. The machinery is strong and durable, and the cradle is a paragon of neatness. As many of our readers would like to know the price of such a useful anti-malthusian piece of furniture, we hereby append the prices of different kinds: Mahogany one, with top, $20 to $25; mahogany, without top, $18; black walnut, with top, $18 to $20; black walnut, without top, $15; plain stained wood, with top, $14—without top, $12. A liberal discount to the trade. With such a cradle, no mother will have the trouble of bawling, from time to time, "rock the cradle, Lucy;" all that is required is simply to wind up the spring, and the automaton nurse will rock Bub to sleep in less time than Jackson, the American Deer, could foot it from Trinity to St. Paul's church.

The agents for this cradle are G. W. Tuttle, No. 345 Broadway, Jas. B. Cook, 66 Broad st., N. Y., and Mr. Brooks, corner of Sand and Fulton streets, Brooklyn.

The inventor and manufacturer is Mr. David Walker, Hamilton Works, Newark, New Jersey, a gentleman who has done the state some service by his cradle, for which he has received the thanks of many mothers, and will receive that of thousands more. There are thousands of fathers who cannot look upon this cradle in any other light than that of a philanthropic improvement.

Byram's American Clocks.

One of Byram's church clocks was put up at Newton, Long Island, last year, and the Rector of the Episcopal, and Pastor of the Presbyterian churches in that place, state, in a letter, that since the first of last March there has been no perceptible variation from Bliss & Creighton's (Chronometer-makers, this city) Regulators, down to the first week of the last month (June). The impression is general among all who have seen the running of the clock, that it is as good a time-keeper as can be made. The performance of this clock has never been surpassed by any imported one.

Gold of California.

By "Hunt's Merchants' Magazine, we learn that no less than $10,689,142 of gold dust was shipped from San Francisco, during the first three months of this year (1851). It is calculated that $64,030,155 will be produced at the mines this year. Surely this musthave an effect upon the market. We are glad to see more articles of luxury made of solid gold now—tinsel and gilt are now giving way to the real metal.

As the new Postage Law prevents us from sending specimen numbers, except at great expense, we hope our friends will put in a good word to acquaintances, and assist in circulating the Scientific American.

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☞ Reported expressly for the Scientific American, from the Patent Office Records. Patentees will find it for their interest to have their inventions illustrated in the Scientific American, as it has by far a larger circulation than any other journal of its class in America, and is the only source to which the public are accustomed to refer for the latest improvements. No charge is made except for the execution of the engravings, which belong to the patentee after publication.

LIST OF PATENT CLAIMS
Issued from the United States Patent Office.
FOR THE WEEK ENDING JULY 8, 1851.

To C. O. Crosby, of New Haven, Conn., for improved mode of Papering Pins.

I claim producing a new manufacture of pin rolls, either oblong, oval, cylindrical, square, or other shape or form (so that it combines, in effect, the common sheeted pin paper or fillet, stuck or inserted pin-paper or pins wound in closely between the layers, laps, or folds, of fillet paper with the common pin-cushion), whether the centre of the cushion is elevated or plane; that is, whether coned up or level, or whether the pins are inserted through crimps or not, and embraced by the fillet paper. The fillet, embracing the shank or barrel of the pins, while the heads of the pins are not so embraced, but open and conveniently accessible to be withdrawn for use without unfolding, unwinding or disturbing the pin roll, substantially as described.

To Richard Dudgeon, of New York, N. Y., for improved Portable Hydraulic Press.

I claim an hydraulic press, quite portable, in which the ram is hollow, and serves as the reservoir, to supply the cylinder with water or other liquid, while the force pump and its appendages are contained within the ram—so that by working this force pump the ram is forced up until the liquid in such ram is exhausted, and by moving the handle of the pump down at will, it comes in contact with a rod attached to a valve in the pump piston, and the latter comes in contact with a valve in the end of the ram opening them both, and allowing the water to return into the ram again through passages.

To D. J. Happersett, of Downingtown, Pa., for Mechanical Hooker-up.

I claim, in combination with a plate or the equivalent thereof, for receiving the mass issuing from a rolling mill, the friction drums, the periphery of one of which is shaped substantially as described and operating substantially as herein set forth in such manner that by their action, the plate or its equivalent is quickly raised and held stationary at the proper height to permit the mass upon it to be passed to the front side of the mill, and is rapidly lowered to the proper position to receive the mass issuing from the rolls.

To Hirsch Heinemann, of New York, N. Y., for improvement in Silk Covered Buttons.

I do not limit myself to the shape of the mould nor to the pattern or color formed on the silk covering. Neither do I claim to be the first who has used the split shank plate and washer, as that has been used with a glass bead for ornamental purposes; but I do not know of any one who has nsed this plate, shank, and washer as the means for fastening a silk covered button, and at the same time secure and hide the ends of the silk cover in the hole of the mould, thereby making a durable, finished, and handsome ornamental button. Therefore, I claim the application of the plate, shank, and washer to a silk covered button for the purposes described.

To B. Holly & J. W. Wheeler, of Seneca Falls, N. Y., for improvement in machines for grooving lumber

We claim the method herein described of forming grooves by circular saws and a deflecting throat in combination with suitable cutters, as set forth.

To Wm. Jones, of Bradford, Vt., for improvement in Harvesting Machines.

I claim the use of rotating cutters in connection with the rotating rake and teeth, operating substantially as described.

I also claim the novel manner of gearing the horses or animal power under the machine so as to conduct the grain over them and discharge it in a straight line in the wake of the machine, substantially as described.

To Wm. King, of New York, N. Y., for improvement in Cork Cutting Machines.

I do not confine myself strictly to the precise form of construction herein described, but claim to vary the same as desirable, while I produce the like results by equivalent mechanical means.

I claim the lifting block, susceptible of such adjustment with reference to the edge of the knife, while the machine is in motion, that from squares of varying sizes perfectly formed corks may be cut of the largest size each square will afford, the whole being constructed and operating substantially in the manner herein set forth.

To Samuel & Morton Pennock, of Kennett Square, Pa., for improvement in Seeding Machines.

First, we claim the employment of the oblique recessed washer, in combination with the cylindrical cap, provided with inclined wings or projectians, which match with the oblique recesses of the washer, in such a manner that the pressure produced thereupon, shall securely hold the cylindrical cap in the required position when adjusted to increase or diminish the size of the seed receptacles.

Second, we claim scolloping the end of the cylindrical cap of the distributing cylinder and using in connection those with clamp screws for holding the cylindrical cap in the required position.

Third, we claim the employment of the pin, or its equivalent, when used in connection with a clamp screw and interior cylindrical cap when properly adjusted to increase or diminish the size of the seed receptacles.

Fourth, we also claim providing one of the journal pins of each depositing tube with a cog, which is made to fit an opening in the arm of the drag bar when it shall be turned frontward nearly horizontal, for the purpose of detaching the depositing tube from the drag bar with facility.

Fifth, we further claim the employment of the trifurcated holding lever, in combination with the drag bar and suspended depositing tube, for the purpose of holding the depositing tube in its proper position during the operation of forming the drill and depositing the seed, and by which said trifurcated holding lever may be disengaged from the pin when an obstruction is visible and allow the depositing tube to turn rearward when it shall have been struck, and thus save the pin from being broken, and this trifurcated holding lever we claim or its equivalent.

Sixth, we also claim causing the depositing tube to assume its proper position after it shall have cleared the obstruction by the action of the long arm of the trifurcated holding lever, upon the cam or projection of the depositing tube, and this we claim as in the arrangement herein described.

Lastly, we claim so combining a separate double arm with the frontward end of each drag bar, that it may be detached therefrom, as well as from the eyes or loops of the front transverse beam of the frame, as described.

To P. W. Porter, of Memphis, Tenn., for improvement in Revolving Breech Fire-arms.

First, in combination with a cocking lever, I claim the two triggers, arranged and operating in such manner that the tripping of the hammer can be effected either in the ordinary manner, by pulling a trigger, or by the return movement of the cocking lever.

Second, I claim the combination of the sliding belt with the cap-primer, the two being so arranged that, as the hammer is tripped, by pulling the trigger, a cap is applied to one of the nipples of the chambered breech, by which means the chambers are revolved by the back motion of the cock, and capped by its forward motion, the capping by this arrangement being effected in one half the time in which it can be done by other means heretofore devised.

Third, I claim the construction of the cap and bullet passages, the powder magazine and the exterior case in such a manner that the bullet and cap passages, and the included powder chamber can be withdrawn from the exterior case which encloses them to give free access to every part of said passages and to facilitate the removal of obstructions therefrom, as described.

Fourth, In combination with a revolving disc breech, I claim a spring powder charger, constructed and operated by the movement of the breech, as set forth.

Fith, in combination with a revolving chambered breech, I claim the stationary cap stripper, constructed and operating as set forth.

Sixth, in combination with a revolving breech fire-arm, I claim the spring dust plate, which permits the escape of smoke but prevents the entrance of dirt.

Seventh, I claim the forward inclination of the spout of the bullet passage in connection with a turning breech, the two being so arranged that when the latter is turning, the bullet dropped into the chamber is pressed against the inclined portion of the spout, and is by it forced down in the chamber of the breech, the inclined surface of the spout thus performing the office of a rammer.

To W. F. Rudd, of Amsterdam, Va., for improved apparatus for punching designs in sheet metal.

I claim the leather bed or die, in combination with a set of punches for punctuating purposes, when such set of punches and the die are used in connection with proper rollers, substantially in the manner and for the purposes set forth.

To Wm. H. Seymour, of Brockport, N. Y., for improvement in Rakes to Harvesting Machines.

I claim the rake attached for raking the grain from the machine without hand labor, constructed and operated substantially as described.

To John Stearns, of Templeton, Mass., for improvement in machines for Pressing Hats.

I claim the method of alternately lowering the pressing irons upon the hat block and raising them therefrom by mechanism operating substantially as herein described, which is readily controlled by the attendant.

To James St. John, of New York, N. Y., for improvements in Lifting Jacks.

I claim the catch or button, operated by the index bar, for the purpose of directing the action of the lever, substantially in the manner herein set forth.

RE-ISSUES.

To E. S. Clapp, of Montague, Mass., for improvement in Fastening of Scythes to the Snath, Patent originally granted March 18, 1851.

I claim, first, the mode of attaching and securing the blade of the scythe to the snath, substantially as herein specified, to wit, by clamping its shank between the edge of an aperture in the end of a metal cap secured to the snath and two bearings or points on the opposite side of the shank and on opposite sides of the first-named bearing point, one of the two bearing consisting in a screw or its equivalent, for the purpose of giving the necessary pressure to clamp it.

Second, the method substantially as herein described, of setting the edge of the blade, move up or down by means of the adjusting screw in combination with the edges of the aperture, which forms one of the three bearing points of the shank.

DESIGNS.

To J. F. Rathbone, of Albany, N. Y., for design for Cooking Stoves.

To Wm. C. Davis, of Cincinnati, Ohio, for design for Stoves.

To Joseph Pratt, of Boston, Mass., for design for Parlor Stoves,

To Wm. Burnet, of Cincinnati, O., for design for Water Coolers.

To James V. DeWitt, of Buffalo, N. Y., for design for Stoves.

To S. W. Gibbs, of Albany, N. Y., (assignor to North Harrison & Chase, of Philadelphia, Pa.) for design for Stoves.

To J. F. Rathbone, of Albany, N. Y. for design for plates of Franklin Stoves, and design for Cooking Stoves.

Correction of a Patent Claim.

In the Scientific American of the 28th June, there is a claim for improvement in Ventilaters" as being the invention of G. S. Griggs, of Roxbury, Mass. The patent was granted to T. C. Hatch, of Braintree, Mass., who is the inventor. Our readers will be pleased to take notice of this correction of an error, committed from the manuscript. We wish and try to have everything correct—every *jot and tittle*, as our paper is a standard work, every number of which will be as useful as a work of reference twenty years hence, as to-day.

For the Scientific American.

Northern Railroads.

ROUSE'S POINT, N. Y., July 6th, 1851.

Seeing in your excellent paper, the perusal of which I have weekly, that you wish to keep posted up as to railroad matters, I occupy a moment or so, in laying before you a short statement of the condition of affairs at this point. Perhaps it is not very generally known to what a great degree of importance this place has attained within comparatively a very short period, and for this reason, this will be more interesting: Rouse's Point is the terminus of four railroads—three of which are built and running, viz., the Ogdensburgh, and the Vermont Central, one, entirely graded, and on which the rails are now being laid, viz., the continuation of the St. Lawrence and Champlain Railroad, formerly the connecting link in the great line of roads from Boston to Montreal, and one, the fourth, the Rouse's Point and Plattsburg, in process of construction at the present time. These four roads, coming as they do from four widely separated and very productive parts of the United States and of Canada, cannot fail to build up the place—indeed, it has already greatly increased in size and business. The amount of freight passing from Ogdensburgh in the direction of Boston is enormous. It requires all the capacities of the very large depot of the Ogdensburgh Co., to accommodate the immense quantities of flour which accumulate faster than it can be removed. This depot is four hundred feet long, and wide enough to contain four tracks, with three large platforms to receive or discharge cargo directly from or into the cars. Quite a large hotel is also combined with the depot—containing some 100 rooms. Steamboats land their passsengers at the very doors of the house. Nearly opposite this wharf is the wharf of the Vermont Central Railroad Company, at Windmill Point, on the Vermont side of the lake—of course you are aware that a severe contest has been sustained in both the New York and Vermont Legislatures, concerning the question of bridging the lake at this point, and also, that but recently the New York Legislature has allowed the Ogdensburgh Co. to carry their piling to the channel. The Vermont Central has also piled out a long distance from their side. The opening will be, when the piling is completed, 250 feet. To facilitate the crossing of passengers and freight, which was formerly crossed on a penny boat, the Vermont Central Co. has built a large and very substantial barge or scow—which they intend to fill the opening entirely, thus forming a floating bridge. The two docks will be so formed that while the scow is not in use, she may be drawn into a slip in either—entirely out of the way of all passing vessels. The scow is 300 feet long and 30 wide—and seven feet deep—she draws when light, two feet of water, amidships—and none at the ends, tracks will be laid on her deck—the loaded trains run from the docks, on board her, and thus transported from one side to the other, by means of a stationary engine, which will be situated on the dock; to obviate the difficulty which would be experienced, (were no such arrangement made) from the varying height of the water, the platforms at the dock ends will be so constructed that they can be raised or lowered to meet emergencies. Legislatures might as well give a right to bridge when companies are determined to get across in some way or other. When the arrangements are fully completed, passengers will be able to go from Boston to Montreal, in 16 hours, and through to Chicago in 3 days and a half.

Yours, J. M. S.

We see it stated in an exchange, that twice as much flax is raised in some parts of Ohio, this season as there were during the past.

Some of the steamships for the West India Mail Line, are being built with feathering paddles.

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TO CORRESPONDENTS.

M. B., of Ind.—The papers you ordered were sent about ten days since. We cannet accept of your proposition; it has been made to us before by our agents.

E. C., of Va.—We believe you are correct in regard to the English patent: we find on reference to the "Patent Journal," that it was issued to A. V. Newton, in 1848, as a communication from a foreigner. Engravings were published in the "Repertory of Arts."

L. A. H., of N. Y.—We have never seen any but three Annunicators: Jackson's bell and card one, the electro magnetic one, and a pneumatic one. Yours appears to be quite different. There surely can be no fears until you get a model of it made. We notice only when the application is made. You are safe enough in putting up the machine, at least we can see no danger.

Ira Avery, of Pa.—Where can your Wringing Machines be purchased in this city, and what is the price? You should advertise your inventions: we have had two inquiries about your Wringing Machine.

W. T., of N. Y.—Yours of the 9th inst. reached us by due course of mail, and the $1 is placed to your credit. The project commenced at the West Point Foundry was abandoned as futile. The plan had been patented by one Thompson.

T. L., of N. J.—The model of the plow you left for our examination has been carefully attended to. It is decided to be new but of doubtful utility, on account of the suddenness of the projection of the subsoil arrangement. It appears to us that, in consequence of this, the point of the plow would many times be thrown from its position. You may have satisfied yourself on this point. Mr. Sheppard's gas burner is decided to be new and patentable.

M., of Phila.—You would not be qualified to fill the position of our Examiner without a knowledge of foreign languages. You are better qualified for the office of machinist.

J. K. G., of Canada.—We are much obliged for your information in regard to patents. Hon. Mr. Cameron's opinion is doubtless correct, and there will be no necessity of your sending an abstract of the law. We sent you a copy of the patent law containing information about models.

A. C., of Mass.—Your article upon the Balloon does not enlighten us, for all you have said is quite well known to us. Our answer will bear a closer scrutiny from you.

H. R. S., of Mich.—The articles in the MS. sent are very useful and suitable to us. We will not be able, after this, to publish any long continued articles.

H. U., of N. Y.—We do not know the peculiarities of the Baltimore press to which you refer, nor the design of the application, whether for books or otherwise. It is not possible for us to give you a solid opinion, at present, respecting the superiority of yours.

R. W., of N. Y.—It would take a large document to give you all the information desired—this our time will not allow. Dialling is now somewhat old fashioned, and is only to be found treated fully in old works. See Reese's Encyclopedia.

G. D., of O.—We should have been happy to publish your able article on the pendulum experiment, but having published so much on the subject, and having laid aside a great number of MS. received, we cannot do so with prudence at present. Prof. Horsford, we hear, has met with difficulties in carrying out full and complete experiments in the Bunker Hill Monument, these difficulties have been attributed to heat.

R. T., of Pa.—Your sketch of an alleged improvement in Harvesters has been examined and is believed not to be patentable. The gearing presents no novel features, and could not, in our opinion, be secured. We might alter our opinion after seeing a model.

J. P., of ——.—Lowell, Mass., or Providence, R. I., would be the best places for you to go to, to get employment: bleaching and dyeing are done there on a large scale. We have been informed that the bleaching of flax has been attempted at Lowell.

M. P., of N. Y.—We are very much obliged to you for the list of plank roads: we had received a notice of something to the same effect, without a list like yours. We will retain the document, and would like a correct list in full, something which, at some other time when you have leisure, you may be able to furnish.

D. McA., of Pa.—Yours will be attended to.

H. K., of Va.—The gearing to move the churn could not be patented for the same kind is now in use, and so are the dashers.

S. T., of N. Y.—Your best plan of getting your machine brought before the public is to get two engravings published in the Sci. Am.

R. M. S., of Mass.—You are in error in respect to any benefit derived by the air-tight boxes.

S T. V., of Pa.—The article to which you refer, about the paddle boxes, being set down in the said magazine as a great improvement, is nonsense from beginning to end.

W. R. of O.—You will find a simple filter in our next number: it will suit your purposes.

J. D., of N. J.—In calculating power you have just to multiply the pressure into the velocity, and divide by 33,000 for the horse power: this is certainly very simple.

E. B. L. of Pa.—Our next volume will be the best ever published, and the present has no equal. We shall illustrate, with handsome engravings, Well Sinking and Boring, different kinds of Steam Boilers, Architecture, &c: you must be up and doing to organize clubs.

J. B. C., of Tenn.—Yours about Water Wheels has just come to hand: we will give it attention.

J. M. C. of Ohio.—There are no carriage makers in this city who issue fashion plates, that we are aware of.

M. P., of N. Y.—Yours has been received and will be attended to next week.

E. G. B., of Me.; S. F., of N. Y.; R. M. W., of Va.; G. S., of Ohio, and S. D. H., of Va.—The engravings of your inventions will appear in the Scientific American as soon as possible. We are obliged to take them up in regular order.

D. J., of Ga.—Yours has just come to hand.

Money received on account of Patent Office business since July 7:

R. M. W., of Va., $25; E. S., of N. H., $20; J. Van B., of N. Y., $30; J. H., of Ill., $10; G. W. C., of Me., $20; H. D., of N. Y., $28; L. R. B., of Ct., $50; C. B., of O., $50; H. & F., of N. J., $20; J. E. M., of Ct., $32.

Specifications and drawings of inventions belonging to parties with the following initials, were forwarded from this office to the Patent Office from June 24 to July 7:—

S. F., of N. Y.; N. S., of N. Y.; W. A. C., of Ct.; A. R., of Vt. (2); J. B., of N. Y.; M. H., of Phila.; B. E. & J. B., of N. Y.; E. B., of N. Y.; A. H., of N. Y.; T. H. D., of N. H.; J. W. R., of N. Y.; J. H., of Ill.; E. D. W., of N. Y. (2); E. S., of N. H.; H. & D., of N. Y.; H. P., of N. Y.; J. Van B., of N. Y.; C. L., of Phila.

Back Numbers and Volumes.

In reply to many interrogatories as to what back numbers and volumes of the Scientific American can be furnished, we make the following statement:

Of Volumes 1, 2, and 3—none.

Of Volume 4, about 20 Nos., price 50 cts.

Of Volume 5, all, price, in sheets, $2; bound, $2,75.

Of Volume 6, all back Nos., at subscription price

New Edition of the Patent Laws.

We have just issued another edition of the American Patent Laws, which was delayed until after the adjournment of the last Congress, on account of an expected modification in them. The pamphlet contains not only the laws but all information touching the rules and regulations of the Patent Office We shall continue to furnish them for 12 1-2 cts. per copy.

Patent Claims.

Persons desiring the claims of any invention which has been patented within fourteen years can obtain a copy by addressing a letter to this office; stating the name of the patentee, and enclosing one dollar as fee for copying.

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American and Foreign Patent Agency.

IMPORTANT TO INVENTORS.—The undersigned having for several years been extensively engaged in procuring Letters Patent for new mechanical and chemical inventions, offer their services to inventors upon most reasonable terms. All business entrusted to their charge is strictly confidential. Private consultations are held with inventors at their office from 9 A. M., until 4 P. M. Inventors, however, need not incur the expense of attending in person, as the preliminaries can all be arranged by letter. Models can be sent with safety by express or any other convenient medium. They should not be over 1 foot square in size, if possible.

Having Agents located in the chief cities of Europe, our facilities for obtaining Foreign Patents are unequalled. This branch of our business receives the especial attention of one of the members of the firm, who is prepared to advise with inventors and manufacturers at all times, relating to Foreign Patents. In the item of charges alone, parties having business to transact abroad, will find it for their interest to consult with us, in preference to any other concern.

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15 HORSE-POWER ENGINE & BOILER for $1000.—We have for sale a first rate Engine and boiler, built by Stillman, Allen & Co., of the Novelty Works, which will be sold at about half its original cost. The boiler is 20 feet long and 35 in. in diameter; 2 return flues, 11 in. in diameter each, with steam chamber top of boiler 2 ft. high, by 16 in. diameter. The heads are wrought iron, with grate bars, fronts, binders, and bolts complete, all made in the best manner, and called by the manufacturers a 20 horse-power boiler; also sheet-iron cap to conduct the smoke from the end of the boiler to the chimney. The Engine is upon a solid horizontal cast-iron frame 13 1-2 ft. long, 2 1-2 wide, 9 in. deep; has a belt balance wheel 8 ft. diameter, 12 in. face; cylinder 2 1-2 ft. stroke and 8 3-4 in. diameter; has copper connecting pipes and heater for heating water before entering boiler; it has double pumps, and the whole is so complete and in such condition that no expense need be incurred in putting it in running order after being properly set. The Engine and Boiler have been in use but 3 years, and are offered at the low price of $1,000 to close a concern. Any one wishing an engine and boiler of the above capacity, will find this an opportunity to purchase cheap which does not often occur.

Any of our subscribers remitting a draft on New York for $1,000, will receive in exchange therefor an engine and boiler which would not be furnished by a manufacturer for less than $1,800. Address
MUNN & CO., (Post-Paid.)

WATTS & BELCHER, Manufacturers of Steam Engines, Lathes, Planing Machines, Power Presses, and Mechanics' Tools of all descriptions: Washington Factory, Newark, N. J. 38 13*

FOR SALE—One 41-2 feet Iron Planer, weighing 1,700 lbs., a good machine. Also second-hand Engine Lathes—one a screw lathe. Apply to ELI WHITNEY, New Haven, Ct. 42 6*

MECHANICS' FAIR.—The Middlesex Mechanic's Association will open their first exhibition for the encouragement of the mechanic arts and manufactures in the city of Lowell, on Tuesday, Sept. 16, 1851. The Committee of Arrangements for this proposed Fair, respectfully invite and solicit all persons engaged in the various branches of mechanism, manufactures, science, and art, to present specimens of their various products for exhibition and premium. Ladies are cordially invited to present specimens of their ingenuity and taste. Preminms will be awarded as the articles presented may merit. Articles for exhibition should be sent on or before Sept. 10th. For more particular information or copies of the circular, address (post-paid) J. A. Beard, Esq., Supt., Lowell, Mass. By order, OLIVER M. WHIPPLE, Chairman.
M. C. BRYANT, Sec'y. 40 10

LAW'S PLANER FOR PLANK, BOARDS, &c., is now attracting much attention on account of its effectiveness, the excellence of its work, its simplicity, and consequent economy. Machines are now in operation in Brooklyn, New York City, and at various points South and West. Rights or machines for sale by H. LAW, 23 Park Row. 35 tf

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LEONARD'S MACHINERY DEPOT, 109 Pearl st. 60 Beaver, N. Y.—The subscriber is constantly receiving, and offers for sale, a great variety of articles connected with the mechanical and manufacturing interest, viz., Machinists' Tools—engines and hand lathes, iron planing and vertical drilling machines, cutting engines, slotting machines, bolt cutters, slide rests, universal chucks, &c. Carpenters' Tools—mortising and tennoning machines, wood planing machines, &c. Steam Engines and Boilers, from 5 to 100 horse power. Mill Gearing,—wrought iron shafting, brass and iron castings made to order. Cotton and Woolen Machinery furnished from the best makers. Cotton Gins, hand and power, and power presses. Leather Banding of all widths, made in a superior manner, from the best oak tanned leather, Manufacturers' Findings of every description—bobbins, reeds, shuttles, temples, pickers, card clothing, roller cloth, potato and wheat starch, oils, &c. P. A. LEONARD. 33tf.

PATENT CAR AXLE LATHE.—I am now manufacturing and have for sale the above lathes: they will turn and finish six sets per day, weight 5,000 lbs., price $600. I have also for sale my Patent Engine Screw Lathe, for turning and chucking tapers, cutting screws, and all kinds of common job work; weight 1500 lbs., price $2-25, if the above lathes do not give good satisfaction, the money will be refunded on the return of the lathe, if within six months. J. D. WHITE,
32 13* Hartford, Conn.

GREAT REDUCTION IN PRICE.—The most valuable book of the day, containing domestic and medical recipes, rules with regard to the recovery and preservation of health, an account of the different medical theories of the day, useful tables, &c., entitled "THE GRAEFENBERG MANUAL OF HEALTH." It is complete in one volume of seven parts, and is beautifully printed upon fine paper, in a convenient form of 300 pages. The immense success which has attended the sale of previous editions, has warranted a reduction in the price of this (the 7th) edition, from 50 to 25 cts. per copy. Any number of copies, from one upward, will be forwarded upon the receipt of the money, (post-paid). Address THE GRAEFENBERG COMPANY, 214 Broadway, N.Y., or this Office. 38tf

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WOODWORTH'S PATENT PLANING MACHINES: 1851 TO 1856.—For rights at Honesdale, Carbondale, Providence, Pittston, Scranton, Wilkesbarre, Williamsport, Meadsville. Newcastle, and other unoccupied towns in Northern Pennsylvania and New York, apply to JOHN GIBSON, Planing Mills, Albany, N. Y. 41 4*

THE COTTON CULTIVATOR, Patented March 20, 1849, is in successful operation in Maury Co., Tenn., both in the cultivation of corn and cotton; it is a saving of one-third the labor usually taken in the cultivation of the above named crops.—State, county, or plantation rights for sale: those wishing to buy will do well to come and see those that use them, and if they do not find them recommended by good farmers as here stated, I will bind myself to give them the right to any State or county. The farmers, in some places, have clubbed together and bought their counties, and have made money by it. The patentee, or some of his agents, will attend most of the Fairs this season, where the Cultivator may be seen. SAMUEL W. AKIN.
Springhill, Maury Co., Tenn. 41 5*

BRICK-MAKER WANTED.—I am desirous of obtaining a foreman for an extensive brick-yard: it will be necessary that he be a sober industrious man, a practical brick-maker, fully competent to superintend the work of 40 men; to such a person a salary of $500 a year would be given; situation permanent, upon good behavior. Address A. MILLER, Raleigh, Canada West. 43 4

MONTGOMERY MANUFACTURING CO'S Iron Works, Montgomery Ala. Capital invested, $250,000. Steam Engines and Boilers, Reuben Rich's cast-iron centre vent water wheel and iron scrolls complete (the very best wheel in use), sugar mills, saw and grist mill irons of most approved patterns, iron and brass castings of every variety, &c. Orders promptly executed, and upon terms as favorable as can be secured from the best northern establishments. When required, deliveries made (through their agents) at Mobile or New Orleans. Address GINDRAT & CO., Agents. 42 3m

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BEARDSLEE'S PATENT PLANING MACHINE, for Planing, Tonguing, and Grooving Boards and Plank.—This recently patented machine is now in successful operation at the Machine Shop and Foundry of Messrs. F. & T. Townsend, Albany, N. Y., where it can be seen. It produces work superior to any mode of planing before known. The number of plank or boards fed into it is the only limit to the amount it will plane. For rights to this machine apply to the patentee at the above-named foundry, or at his residence, No. 764 Broadway, Albany. GEO. W. BEARDSLEE. 43tf

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IRON FOUNDERS MATERIALS—viz., fine ground and Bolted Sea Coal, Charcoal, Lehigh, Soapstone, and Black Lead Facing. Iron and brass moulding Sand; Fire Clay, Fire Sand, and Kaolin; also English, Scotch, and Welsh Fire Bricks—plain, arch, circh, circular, and tower cupola, for sale by G. O. ROBERTSON, Liberty Place, between 57 and 59 Liberty st., (near the Post Office), N. Y. 44 12*

MORTISING MACHINE.—Dear Sirs: I received the Portable Mortising Machine about 3 weeks ago: I have used it, and am very well pleased with it. It is the best plan of a machine of the kind I have ever seen. W. R. McFARLAND.
Nashville, Tenn., June 22, 1851.
The above machines are for sale by MUNN & CO., price $20—boxed and shipped. 42 tf

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A CARD.—The undersigned beg leave to draw the attention of architects, engineers, machinists, opticians, watchmakers, jewellers, and manufacturers of all kinds of instruments, to his new and extensive assortment of fine English (Stubs) and Swiss Files and Tools, also his imported and own manufactured Mathematical Drawing Instruments of Swiss and English style, which he offers at very reasonable prices. Orders for any kind of instruments will be promptly executed by F. A. SIBENMANN, Importer of Watchmakers' and Jewellers' Files and Tools, and manufacturer of Mathematical Instruments, 154 Fulton st. 42 3m*

DICK'S GREAT POWER PRESS.—The public are hereby informed that the Matteawan Company, having entered into an arrangement with the Patentee for the manufacture of the so-called Dick's Anti-Friction Press, are now prepared to execute orders for the following, to which this power is applicable, viz.—Boiler Punches, Boiler Plate Shears, Saw Gummers, Rail Straighteners, Copying and Sealing Presses, Book and Paper Presses, Embossing Presses, Presses for Baling Cotton and Woollen Goods—Cotton, Hay, Tobacco, and Cider Presses; Flaxseed, Lard, and Sperm Oil Presses; Stump Extractors, &c. &c. The convenience and celerity with which this machine can be operated, is such that on an average, not more than one-fourth the time will be required to do the same work with the same force required by any other machine.
WILLIAM B. LEONARD, Agent,
25tf No. 66 Beaver st., New York City.

MACHINES FOR CUTTING SHINGLES. The extraordinary success of Wood's Patent Shingle Machine, under every circumstance where it has been tried, fully establishes its superiority over any other machine for the purpose ever yet offered to the public. It received the first premium at the last Fair of the American Institute—where its operation was witnessed by hundreds. A few State rights remain unsold. Patented January 8th, 1850,—13 years more to run. Terms made easy to the purchaser. Address, (post-paid) JAMES D. JOHNSON, Redding Ridge, Conn., or Wm. WOOD, Westport, Conn.. All letters will be promptly attended to. 37tf

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TO PAINTERS AND OTHERS.—American Anatemic Drier, Electro Chemical graining colors, Electro Negative gold size, and Chemical Oil Stove Polish. The Drier, improves in quality, by age—is adapted to all kinds of paints, and also to Printers' inks and colors. The above articles are compounded upon known chemical laws, and are submitted to the public without further comment. Manufactured and sold wholesale and retail at 114 John st., New York, and Flushing, L. I., N. Y., by
QUARTERMAN & SON,
35tf Painters and Chemists

MACHINERY.—S. C. HILLS, No. 12 Platt Street, N. Y., dealer in Steam Engines, Boilers, Iron Planers, Lathes, Universal Chucks, Drills Kase's, Von Schmidt's, and other Pumps, Johnson's Shingle machines, Woodworth's, Daniel's and Law's Planing machines Dick's Presses, Punches, and Shears; Mortising and Tennoning Machines, Belting, machinery oil; Beal's patent Cob and Corn Mills; Burr Mill, and Grindstones, Lead and Iron Pipe, &c. Letters to be noticed must be post paid. 38tf

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BAILEY'S SELF-CENTERING LATHE, for turning Broom and other handles, swelled work, chair spindles, &c.; warranted to turn out twice the work of any other lathe known—doing in a first rate manner 2000 broom handles and 4000 chair spindles per day, and other work in proportion. Orders, post-paid, may be forwarded to L. A. SPALDING, Lockport, N. Y. 21tf

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RAILROAD CAR MANUFACTORY.—TRACY & FALES, Grove Works, Hartford, Conn. Passage, Freight and all other descriptions of Railroad Cars, as well as Locomotive Tenders, made to order promptly. The above is the largest Car Factory in the Union. In quality of material and in workmanship, beauty and good taste, as well as strength and durability, we are determined our work shall be unsurpassed. JOHN R. TRACY,
39tf. THOMAS J. FALES.

LAP-WELDED WROUGHT IRON TUBES for Tubular Boilers, from 1 1-4 to 7 inches in diameter. The only Tubes of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine, and other Steam Engine Boilers.
THOS. PROSSER & SON, Patentees,
16tf 28 Platt st., New York.

LATHES FOR BROOM HANDLES, Etc. We continue to sell Alcott's Concentric Lathe, which is adapted to turning Windsor Chair Legs, Pillars, Rods and Rounds; Hoe Handles, Fork Handles, and Broom Handles.

This Lathe is capable of turning under two inches diameter, with only the trouble of changing the dies and pattern to the size required. It will turn smooth over swells or depressions of 3-4 to the inch, and work as smoothly as on a straight line, and does excellent work. Sold without frames for the low price of $25—boxed and shipped, with directions for setting up. Address, (post paid) MUNN & CO.,
At this Office.

WOODWORTH'S PLANING MACHINE. For sale, the right to use this justly celebrated labor-saving machine in the following States, viz.: Pennsylvania west of the Allegheny Mountains, Virginia west of the Blue Ridge, Ohio, Indiana, Kentucky, Tennessee, Wisconsin, Iowa, Missouri, Arkansas, Texas, Louisiana, Florida, Alabama, and Mississippi. For particulars apply to the Proprietor, ELISHA BLOOMER, 304 Broadway. 38 10*

SCRANTON & PARSHLEY, Tool Builders, New Haven, Conn., having had many applications for castings from their lathe patterns, with beds planed and screw and gearing out, have now made arrangements to accommodate that class of customers; this arrangement will enable small shops, with a little more than half of the amount of ready cash, to get them a new lathe. Cuts of these lathes and other tools can be had by addressing as above (post-paid). N. B. Machinists' tools constantly on hand. 40tf

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MECHANICS' INSTITUTE FAIR.—The attention of Mechanics, inventors, and artisans is especially called to the Polytechnic Exhibition, which will open at the rooms, cor. Bowery and Division st, on the 15th of May. Those who wish to exhibit models, machinery, &c., of mechanical skill, and those who would like to carry on, permanently, any mechanical occupation that would be in any way curious or attractive to visitors, are requested to call on the Actuary. Steam power will be provided. Well-lighted, warmed, and airy rooms can be had on liberal terms. As this Exhibition is permanent, an excellent opportunity is offered to skillful mechanics to bring themselves into notice. Articles may be sent in immediately and will be taken care of and insured. Z. PRATT, Prest.; T. C. DODD, Actuary. 34tf

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Scientific Museum.

For the Scientific American.

Necrology for the last Half Century---Men of Science.

(Continued from page 344.)

Pierre Andre Latreille, zoologist, born at Brives, France, 1762; died at Paris, Feb. 6, 1833.

Rene Louiche Desfontaines, botanist, born at Tremblay, France, 1752, died Nov. 16, 1833.

Martin Field, mineralogist and botanist, died at Newfane, Vt., Oct. 1833, aged 60.

J. J. Houton de Labillardiere, born at Alencon, 1775, died at Paris, Jan. 8, 1834.

John Aldini, philosopher, and relative of Galvani, died at Milan, Jan. 17, 1834, aged 71.

Lewis D. De Schweinitz, chemist, died at Bethlehem, Pa., Feb., 1834, aged 62.

Sigismund Hernbstadt, chemist, died at Berlin, June, 1834.

David Douglass, naturalist, born at Perth, Scotland; killed near Honolulu, July 12, 1834.

Felix Pascalis, mineralogist, born in France, died at New York, July 22, 1834, aged 72.

Geo. Gibbs, mineralogist, died at Newtown, N. Y., Aug. 5, 1834, aged 57.

Wm. Meade, mineralogist, born in Ireland, died at Newburg, N. Y., Aug. 29, 1834.

Richard Cunningham, botanist, murdered by natives of New South Wales, April, 1835, aged 42.

Thomas Say, zoologist, born at Philadelphia, died at New Harmony, Iowa, Oct. 10, 1835, aged 46.

Adam Afzelius, botanist, born in Sweden, died at Upsal, Jan. 30, 1837, aged 86.

M. Persoon, botanist of the Cape of Good Hope, died at Paris, 1837.

Edward Turner, chemist, born in Jamaica, died at Hampstead, Eng., Feb. 12, 1837, aged 40.

Geo. Chilton, chemist, born in England, died at New York, 1837.

Edward T. Bennet, zoologist, died in Scotland, Aug. 21, 1837.

Nathaniel Bowditch, philosopher, born at Salem, Mass., March 26, 1773, died at Boston, March 16, 1838.

Wm. Maclure, geologist, born at Ayr, Scotland, 1763; died at San Angel, Mexico, 1840.

Henry W. M. Olbers, astronomer, born at Arbergen, Ger., Oct. 11, 1758; died at Bremen, March 2, 1840.

Ebenezer P. Mason, astronomer, died at Richmond, Va., Dec. 26, 1840, aged 22.

Augustine P. DeCandolle, botanist, born at Geneva, 1778; died, 1841.

Lambert, Guillemin, Carrens, and Vaucher, French botanists, died, 1841.

David Don, English botanist, died Dec. 8, 1841, aged 41.

M. Vogel, botanist of Bonn; fell a victim of the ill-starred Niger Expedition, Dec. 17, 1841.

Amos Eaton, botanist and geologist, died at Troy, N. Y., May 10, 1842, aged 66.

Robt. Bakewell, geologist, died at Hampstead, Eng., Aug. 15, 1842, aged 75.

Louis Lederer, mineralogist, born in Austria, died at New York Dec. 22, 1842.

J. N. Nicollet, French astronomer, died at Washington, D. C., Sept. 11, 1843, aged 48.

Col. Trumbull, father of American historical painting, died at New York Nov. 10, 1843, aged 88.

Jas. H. Lindsley, geologist, died at Stratford, Conn., Dec. 26, 1843, aged 46.

Theodore De Sassure, botanist and mineralogist, died at Geneva, April 18, 1845, aged 78.

John Fred. Daniell, philosopher, born at London, March 12, 1790, died March 13, 1845.

Wm. Horton, mineralogist, died at Craigville, N. Y., 1845.

Douglass Houghton, geologist, born at Bolton, Mass., drowned in Lake Superior, Oct. 13, 1845, aged 45.

Jaques Dominique Cassini, French astronomer, died 1846, aged 97.

Fred. Wm. Bessel, astronomer; died at Konigsberg, Persia, March 17, 1846, aged 61.

Aime Bonpland, naturalist, died as Corruntes, U. P., 1846.

J. F. Benzenberg, astronomer, died at Dusseldorff, Russia, 1846, aged 67.

Theodore Montecelli, geologist, born at Brindisi, Italy, 1759, died at Naples 1846.

Isaiah Lukens, philosophic artist, died at Philadelphia, No. 13, 1846, aged 69.

Chas. A. Lesuer, naturalist, born at Havre-de-Grace Jan. 1, 1778, died Dec. 12, 1846.

Amos Binney, mineralogist and conchologist, of Boston, died at Rome Feb. 18, 1847, aged 43.

J. B. Crawe, naturalist, born in Ct., drowned in Perch Lake, Jefferson Co., N. Y., June 2, 1847, aged 54.

Alexander Brongniart, geologist, born at Paris 1870, died Oct., 1847.

Lardner Vanuxem, geologist and chemist, born at Philadelphia, died at Bristol, Penn., Jan. 25, 1848.

Wm. Oakes, botanist, born at Danvers, Mass., July 1, 1799, drowned near Boston, July 31, 1848.

Samuel Guthrie, chemist, died near Sackett's Harbor, N. Y., Oct. 19, 1848, aged 66.

Robt. Gilmor, mineralogist, died at Baltimore Nov. 30, 1848, aged 74.

A. Goldfuss, paleontologist, d. 1848, aged 60.

Berzelius, chemist, born at Vafversunda, Sweden, Aug. 28, 1779; died Aug. 7, 1848.

Julius T. Ducatel, geologist and chemist, born at Baltimore June 6, 1796, died April 23, 1849.

Stephen Endlicher, botanist, of Vienna, died 1849.

Jno. Caldecott, astronomer of the Rajah of Travancore, died at Trevandrum, India, Dec., 1849.

Wm. Gambel, naturalist, died in Alta California Dec. 13, 1849.

Martin Gay, chemist and mineralogist, born at Boston Feb. 16, 1803, died Jan. 12, 1850.

M. P. Souyet, chemist, died at Brussels, 1850, aged 32.

M. Kunth, botanist, died at Berlin, March 22, 1850.

Ducrotay De Blainville, naturalist, died in France May, 1850, aged 73.

Gay Lussac, naturalist, died at Paris May 10, 1850, aged 71.

Wm. Kirby, father of English entomology, died at Suffolk July 4, 1850, aged 91.

Wm. Sturgeon, electrician, born at Whittington, Eng., 1783, died Dec. 8, 1850.

H. C. Schumacher, astronomer of Altona, Denmark, died Dec. 28, 1850, aged 70.

J. W. O.

Hydraulics.

[Continued from page 336.]

DRIPPS' WATER WHEEL.—The accompanying engravings illustrate an improvement in water wheels, invented by Mr. William Dripps, of Midway Village, near Coatsville, Pa., and for which a patent was granted in May, 1845.

Figure 56 is a top view of wheel and shute, or guides. A is the wheel; B is the bucket of the wheel, for the water to act in; C, the guides for directing the water against the buckets of the wheel. The six long divisions are to prevent the water from passing from one gate to the other.

FIG. 56.

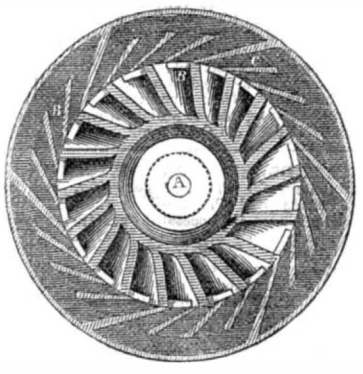
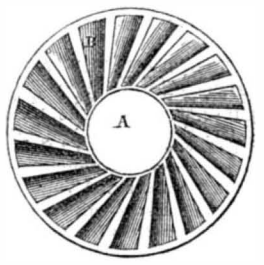


Fig. 57 is a bottom view of the wheel. B is the buckets where the water leaves the wheel.

Figure 58 is an edge view of the wheel and shute. A is the wheel; B is the bucket. The dotted lines show the direction the water takes when acting on the wheel: the water first acts on the outer part of the bucket, and inclines inwards. After acting a short distance in that direction, it is turned downwards, and acts from the time it first enters the bucket until it leaves it; and if the motion of the wheel is checked, the water will act the harder on the buckets, because the water is more confined and cannot get away; E is the shaft of the wheel; F is the pipe enclosing the shaft; D D are the gates for letting the water on the wheel, one of which is raised, the other shut. By this arrangement the wheel may be made of any power, apply any part of that power, and use no more water than is in proportion to the power obtained. This is an advantage that no other iron wheel possesses. There are six gates to each wheel, one or all of which can be drawn, just as is necessary to give sufficient power. The gates are iron, and

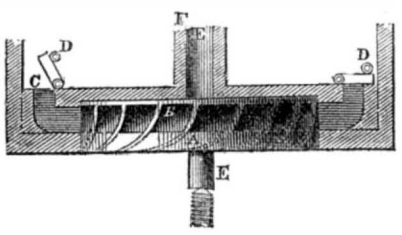
FIG. 57.



shut on a lead ring, so that their weight will always keep them tight. They are not liable to wear or get out of order, as they do not slide, they turn up on their edge. The wheel is cast in one piece—buckets and rim—so that there is no danger of the buckets becoming loose; and its being in a solid piece, gives it great strength. The shute, or case surrounding the wheel, is cast in one piece, which makes it very strong, and not liable to get out of order. It is made with six divisions, which are opened and shut by gates, as before mentioned. The wheel and shute are turned to fit each other, so that the water cannot escape between the buckets and shutes. All the parts connected with this are made of iron, so that it will be very durable.

The advantages of this wheel over all others are stated by Mr. Dripps to be as follow:

FIG. 58.



1. It works equal to the best constructed overshot wheels, under any head, while it is more durable, and is not affected by backwater or ice, as it is placed under water.

2. The buckets cannot get loose, because they are cast solid with the rim.

3. The motion is more regular than that of other wheels. In the overshot wheel, as soon as the motion is checked, the buckets fill, and the water runs over, and does not act on the wheel. This wheel being driven by the pressure of the water, when the motion of the wheel is checked, the water is more confined, and must act the harder on the wheel. It is also well known that if a stream of water is stopped suddenly, a shock or rebound is created, which causes it to fly out at any leak with great force; if, therefore, the motion of this wheel is checked, it creates such a rebound, which strikes the buckets with increased force.

4. In all other wheels, the water leaves the buckets on a straight line from where the water enters; consequently, as soon as the motion of the wheel is checked, the water shoots through without acting on the buckets or diminishing the quantity of water; the arrangement of this wheel, therefore, is in every respect a most important improvement.

5. One other great advantage is the arrangement of the gates, as before mentioned, as the wheel is easily got at if repairs should be necessary, though it is not likely that any will be wanted.

These wheels are made at Midway where more information may be obtained of Mr. Dripps by letter.

Relation of the Chemical Constitution of Bodies to Taste.

In 1846, Prof. Horsford, of Harvard, published a paper in which he called attention, in a note, to the interesting relation sustained by glycocol to the other sweet bodies—grape sugar, sugar of lead, &c., and appended the query, "is this similar taste dependent upon a similar arrangement of their minutest particles." He has now published a pamphlet in which are enumerated, with their chemical formulæ, a great number of substances to prove that such an arrangement does exist among bodies having a common taste.

Prof. Horsford is no boubt correct in his inferences, for we find that a single substance, such as butter, has a very different taste in its crystaline from its real unctuous state.

LITERARY NOTICES.

SHERBURNE'S LIFE OF PAUL JONES.—Messrs. Adriance, Sherman & Co., No. 2 Astor House, this city, have published a splendid volume, containing the "Life and Character of Paul Jones," by John Henry Sherburne, author of "Naval Sketches," &c. By this work we learn that Paul Jones was originally John Paul, a native of the south of Scotland. He was the first man to hoist the American flag on a national vessel, and was the first American commander who received for America the first salute of honor from a foreign nation. He was a most intrepid hero—a fire-eater in every sense of the term. He performed some of the greatest naval feats ever accomplished, and carried the terror of the American arms to the coasts of Britain. He led our country to conquer on the seas, and bearded the lion in his very den. The work is mostly composed of the letters of Jones to, and those from other persons. He was a favorite and intimate friend of Franklin and Jefferson, and corresponded with them at great length. As a correct and authoritative standard biography of Jones, this is undoubtedly the only work yet published. The author does justice, with evident impartiality, to this first of American naval heroes.

HUNT'S MERCHANT'S MAGAZINE.—The July number of this famed magazine contains some splendid articles. One on "The Trade and Piracy of the Eastern Archipelago," and another on "The Influence of Commerce," are exceedingly interesting and instructive. We see that a correspondent from Matteawan, N. Y., corrects a very great error of the 'Economist,' published at Cannelton, Ind., respecting the profits of manufacturing at the Graniteville Mills., S. C., and the Atlantic Mills, Mass.

ICONOGRAPHIC ENCYCLOPEDIA.—Part 21 of this useful and beautiful work is now published and ready for sale by Mr. Rudolph Garrigue, No. 2 Barclay st., this city. It contains 20 beautiful plates of the Religious Rites of various heathen nations. In each plate there are sometimes forty and fifty figures. The plates are admirably executed. There are 80 pages of letter press to each part, descriptive of the plates. The letter press is not up to the plates, but all will be completed together.

HYDROPATHIC ENCYCLOPEDIA.—Number 2 of this really excellent and standard work, edited by R. T. Trall, M. D., and published by Fowlers & Wells, of this city, contains a great deal of excellent matter. It is well illustrated with engravings respecting anatomy in all its various branches.

THE PHRENOLOGICAL JOURNAL, for July, by the same publishers, is a capital number. This Magazine is very popular, and we hear its good qualities spoken of wherever we go.

MECHANICS

INVENTORS
AND
MANUFACTURERS.

The Best Mechanical Paper
IN THE WORLD!
SIXTH VOLUME OF THE
SCIENTIFIC AMERICAN.

The Publishers of the SCIENTIFIC AMERICAN respectfully give notice that the SIXTH VOLUME of this valuable journal, commenced on the 21st of September last. The character of the SCIENTIFIC AMERICAN is too well known throughout the country to require a detailed account of the various subjects discussed through its columns.

It enjoys a more extensive and influential circulation than any other journal of its class in America.

It is published weekly, as heretofore, in *Quarto Form*, on fine paper, affording, at the end of the year, an *ILLUSTRATED ENCYCLOPEDIA*, of over FOUR HUNDRED PAGES, with an Index, and from FIVE to SIX HUNDRED *ORIGINAL ENGRAVINGS*, described by letters of reference; besides a vast amount of practical information concerning the progress of SCIENTIFIC and MECHANICAL IMPROVEMENTS, CHEMISTRY, CIVIL ENGINEERING, MANUFACTURING in its various branches, ARCHITECTURE, MASONRY, BOTANY,—in short, it embraces the entire range of the Arts and Sciences.

It also possesses an original feature not found in any other weekly journal in the country, viz., an *Official List of PATENT CLAIMS*, prepared expressly for its columns at the Patent Office,—thus constituting it the "*AMERICAN REPERTORY OF INVENTIONS.*"

TERMS—$2 a-year; $1 for six months.

All Letters must be Post Paid and directed to
MUNN & CO.,
Publishers of the Scientific American,
128 Fulton street, New York.

INDUCEMENTS FOR CLUBBING.

Any person who will send us four subscribers for six months, at our regular rates, shall be entitled to one copy for the same length of time; or we will furnish—

10 copies for 6 mos., $8 | 15 copies for 12 mos., $22
10 " 12 " $15 | 20 " 12 " $28

Southern and Western Money taken at par for subscriptions.

PREMIUM

Any person sending us three subscribers will be entitled to a copy of the "History of Propellers and Steam Navigation," re-published in book form—having first appeared in a series of articles published in the fifth Volume of the Scientific American. It is one of the most complete works upon the subject ever issued, and contains about ninety engravings—price 75 cents.

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